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İşin Adı
The Name of the Job : Mersin-Adana-Osmaniye-Gaziantep Yüksek Standartlı Demiryolu Hattı
İnşaatı ile Elektromekanik Sistemlerinin Temini
Construction of Mersin-Adana-Osmaniye-Gaziantep Hight Standard Railway Line
With Supply Of Electromechanical Systems

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FRAMEWORK**

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1. Purpose

The purpose of this Emergency Action Plan is to prepare the emergency plans that may occur within the REC ULUSLARARASI İNŞAAT YATIRIM SAN. TİC. A.Ş. MERSİN-ADANA-OSMANİYE-GAZİANTEP HIGH STANDARD RAILWAY LINE CONSTRUCTION AND SUPPLY PROJECT, to analyze in advance the emergency situations that may occur in prevention, protection, evacuation, fire fighting, first aid and similar issues, to determine the method and the responsibilities of the assigned staff.

With the studies to be done, it is aimed to manage these situations safely and to determine the employees to be assigned in these matters. This plan aims to prevent damage to personnel, damage to the environment, material damage, damage to company image and economic losses, and to minimize the possible losses;

- to determine the activities, methods and responsible persons in order to ensure that the usual services are continued during and after the emergency and unexpected situation that may occur out of MERSİN-ADANA-OSMANİYE-GAZİANTEP HIGH STANDARD RAILWAY LINE CONSTRUCTION AND SUPPLY OF ELECTROMECHANICAL SYSTEMS PROJECT,
- that may adversely affect the environment employees, the environment, the MERSİN-ADANA-OSMANİYE-GAZİANTEP HIGH STANDARD RAILWAY LINE CONSTRUCTION AND SUPPLY OF ELECTROMECHANICAL SYSTEMS PROJECT and the MERSİN-ADANA-OSMANATI-GAZİANTEP HIGH STANDARD RAILWAY LINE PROJECT.

2. National Legislation

- Occupational Health and Safety Law No 6331
(Official Gazette Date: 30.06.2012; Issue: 28339)
- Regulation on Emergency Situations at Workplaces
(Official Gazette Date: 18.06.2013; Issue: 28681)
- Regulation on Protection of Buildings from Fire
(Official Gazette Date: 27.11.2007; Issue: 26735)
- First Aid Regulation
(Official Gazette Date: 29 July 2015; Issue: 29429)

3. Scope

- While preparing the emergency preparedness and response plan, the results of the risk assessment, fire, the possibility of spreading and explosion from dangerous chemical substances, the events that will require first aid and evacuation, the possibility of the occurrence of natural disasters, the possibility of sabotage, epidemic and infectious diseases, infrastructure failures, workplaces and settlements were evaluated. This plan, which was prepared as a result of the evaluation, covers the following situations at the sites within the field of activity of the REC ULUSLARARASI İNŞAAT YATIRIM SAN. TİC. A.Ş. COMPANY'S MERSİN-ADANA-OSMANİYE-GAZİANTEP HIGH STANDARD RAILWAY LINE

CONSTRUCTION AND SUPPLY OF ELECTROMECHANICAL SYSTEMS PROJECT.

- Fire or Explosions
- Environmental accidents (Chemical Leakage, Gas Leakage, fuel etc.)
- Pressure Vessels
- Rescue of workers at height
- Rescue workers in confined spaces
- Natural disasters (earthquake, flood, storm, etc.)
- Sabotage
- Serious injury accidents and/or fatal accidents
- Epidemic and infectious diseases
- Construction Equipments
- food poisoning
- Electric shock
- Excavations.
- Lifting Operations
- State of war

The emergency plan is prepared by following the stages of determining the emergency situations starting from the design or establishment phase, taking measures to prevent and limiting their negative effects, determining the persons to be assigned, establishing emergency response and evacuation methods, documentation, exercise and renewal of the emergency plan for all workplaces.

4. Objective

The objective of this plan is to prevent and minimize the loss of life and property that may occur in emergencies that may occur in the work area, to keep the equipment and tools to be used in emergency situations always ready, and to indicate how the necessary coordination will be provided.

5. Responsibility

in case of emergency at the MERSIN-ADANA-OSMANİYE-GAZİANTEP HIGH STANDARD RAILWAY LINE CONSTRUCTION AND SUPPLY OF ELECTROMECHANICAL SYSTEMS PROJECT,; Before the Emergency, During the Emergency, After the Emergency,

- a. to use and manage resources of the MERSIN-ADANA-OSMANİYE-GAZİANTEP HIGH STANDARD RAILWAY LINE CONSTRUCTION AND SUPPLY OF ELECTROMECHANICAL SYSTEMS PROJECT
- b. Using and managing in-community resources
- c. Using and managing external resources

To guide the correct implementation of applications for abovementioned matters..



Implementation of the Emergency Plan is under the responsibility of the Employers / Employer's Representatives or the Site Managers in the MERSIN-ADANA-OSMANİYE-GAZİANTEP HIGH STANDARD RAILWAY LINE CONSTRUCTION AND SUPPLY OF ELECTROMECHANICAL SYSTEMS PROJECT.

5.1 Project / Operation HSE Manager / Chief

Project HSE Manager / Chief is responsible for coordination and monitoring of this document in order for the enforcement thereof in all sites and activities. Project HSE Manager / Chief is also responsible for:

Using this document as a basis for creating the relevant project / operation procedures,

- Providing training to the employees and subRECs in the scope of this document,
- Ensuring coordination with the directors / supervisors in charge of activities in the site / operations for enforcement of this document, and
- Monitoring whether the efficiency and contents of this document are enforced properly, reviewing, and contacting the Group Company Coordination / Manager / Director and/or Corporate HSE Management Department in case revision is needed

5.2 HEADQUARTER E&S MANAGER:

Responsible for managing infrastructure and superstructure projects regarding environmental and social governance issues and member of the Executive E&S Committee on behalf of the REC.

5.3 PIU (PROJECT IMPLEMENTATION UNIT)

- **PIU Department Manager (Superstructure / Civil Engineer)** will be responsible for overseeing the implementation of all health, safety and social measures, as specified within the disclosure package of the Project, and regular reporting to AYGM PIU.
- **PIU Physics Engineer** who is responsible for supervising health and safety for the Project.
- **PIU Department Manager (Environmental and Feasibility / Environmental Engineer)** will be responsible for supervising the implementation of all environmental and biodiversity measures, as specified within the disclosure package of the Project, and regular reporting to AYGM PIU.

5.4 EXECUTIVE ENVIRONMENTAL AND SOCIAL MANAGEMENT COMMITTEE

- **Executive E&S Committee Project Manager (Department Head / Branch Manager /Head of Department)** will be ultimately responsible for overseeing the activities undertaken by the AYGM/TCDD specialists (listed below), overseeing the implementation of mitigation measures and management procedures specified within

the disclosure package of the Project, and overseeing the preparation and implementation of a CESMP, which will be based on this ESMP.

- **Executive E&S Committee Environmental, Health and Safety, and Social (EHSS) Manager (Specialist / Engineer)** will be responsible for overseeing all matters that relate to environment, health, safety and social aspects of the Project. Also, s/he will be appointed to be responsible for supporting the implementation of the SEP, by conducting regular consultation with affected communities on any concern regarding the Project. CLOs will also have responsibility for disseminating the Project disclosure package as described in the SEP. They will also conduct regular inspections of records relating to grievances received and their resolution. S/He will report regularly to AYGM PIU.

Further technical staff may be required during the course of the Project, who will be assigned internally by the AYGM, either by means of permanent or temporary basis until the completion of relevant tasks under the Project whilst they undertake their current responsibilities

6. Definitions and Abbreviations

Emergency Situation:An emergency is a set of events that are unpredictable, occur suddenly and require rapid intervention. These are events that require emergency intervention, struggle, often first aid or evacuation, such as fire, explosion, the spread of dangerous chemicals, natural disasters that may occur in the whole or part of the workplace.

which may cause injury or loss of life to employees, visitors of MERSIN-ADANA-OSMANİYE-GAZIANTEP HIGH STANDARD RAILWAY LINE CONSTRUCTION AND SUPPLY OF ELECTROMECHANICAL SYSTEMS PROJECT, or those in nearby facilities or settlements, partially or completely stop the workplace, damage the workplace or the natural environment, Unplanned events that threaten its structure or its image in society.

Emergency Plan: Emergency Planning, which includes the information and action-oriented actions, including the work and actions to be taken in case of emergencies that may occur in the workplace, the effects of problems or disasters that may cause interruption while doing business in any way, on business activities or business processes, taking into account all sources. It is a large-scale plan in which the dimensions, various possible scenarios and the response team are determined in advance.

Crisis desk:In emergencies, it meets under the coordination of the project manager. It provides the necessary coordination according to the information coming from the field. The crisis desk includes the project manager, assistant project manager, HSE manager, Human resources chief, HSE documentation and Reporting Officer. Employees are checked according to the counts coming from the assembly areas. Decides that the emergency or the exercise is over. This group is responsible for taking the necessary actions.

Emergency Management:When an emergency occurs, it is the management of personnel, equipment, and emergency plans and applications.

Emergency Response Team (ADME):It is the team that provides the evacuation of the employees in emergency situations, makes the first response to the incident, participates in the search-rescue and extinguishing works and applies first aid when necessary.



Head of Crisis Desk: It is the person who decides to establish the crisis desk in emergencies and coordinates the crisis desk. In this plan, Project manager has been assigned to this task. In the absence of the Project Manager, the Deputy Project Manager acts as the head of the crisis desk.

Emergency Coordinator It is a trained and qualified person who provides the necessary coordination in emergency situations. In this plan, the Production Manager has been appointed to this task. When the Production Manager is not present, the HSE Manager acts as the emergency coordinator.

Hazard:The potential to cause harm, damage or injury.

Risk:The probability of occurrence of the hazard and the harm it may cause.

Accident:Undesired incident which causes death, sickness, injury, damage or other losses.

Combustion:A chemical reaction that starts with the combination of heat, combustible material and oxygen factors in the appropriate ratio.

Fire:The uncontrollable and unpreventable state of the combustion event.

Earthquake:The shaking of the earth's surface with sudden, rapid movements and vibrational movements due to underground movements.

Sabotage:Intentional act and behavior intended to interfere with the normal functioning of a service, a business institution, or to render an installation, a machine, unusable,

Occupational Accident:An unplanned event that often causes personal injury, damage to machinery, tools and equipment, and production stops for a while,

Search:After the emergency occurs, the work done to find the missing personnel dead, injured or alive.

Reescue:It ensures the safe removal of injured or injured personnel from the emergency area. Rescue operation is carried out by at least two competent personnel.

Evacuation: Safe removal of materials, equipment and personnel from the risk or disaster area,

Assembly Area: They are safe assembly areas designated for emergencies.

Emergency Chief:It is the person who controls the emergency equipment and coordinates the teams during the emergency response. The person who will manage this task in the emergency plan is the HSE Manager. In the absence of the HSE Manager, the acting HSE Chief assumes the duty of emergency chief.

Abbreviations:

SDS: Safety data sheet

ADEP: Emergency Action Plan

HSE:Occupational Health and Safety and Environment

ADME: Emergency Response Team

ADKM:Emergency crisis desk

LOTO: (Tagout, Lockout, Tryout):

PPE: Personal Protective Equipment

7. Information about the construction site

- Description of Construction Site: MERSİN-ADANA-OSMANİYE-GAZİANTEP HIGH STANDARD RAILWAY LINE CONSTRUCTION AND SUPPLY OF ELECTROMECHANICAL SYSTEMS PROJECT,
- Site Location:
REC ULUSLARARASI İNŞAAT YATIRIM SAN.TİC. A.Ş. COMPANY'S MERSİN-ADANA-OSMANİYE-GAZİANTEP HIGH STANDARD RAILWAY LINE CONSTRUCTION AND SUPPLY OF ELECTROMECHANICAL SYSTEMS PROJECT, is located at, Yenice mah. Atatürk cad. No:17 Tarsus/MERSİN
- MERSİN-ADANA-OSMANİYE-GAZİANTEP HIGH STANDARD RAILWAY LINE CONSTRUCTION AND SUPPLY OF ELECTROMECHANICAL SYSTEMS PROJECT is in the VERY DANGEROUS class as a hazard class.**

8. Emergency Management

The best management of the emergency situation is of vital importance in order to make the intervention as soon as possible. Emergencies, their responsibilities and course of action are specified in the plan.

No personnel should be allowed to work alone, including in an emergency.

Vehicles must be parked in the emergency exit direction (with their front facing the escape direction).

Pedestrian and vehicle roads should be separated from each other. Vehicle parking areas should be away from living areas.

Emergency teams are assigned for the work area and the camp/office area.

8.1. Activities to Be Done Before an Emergency

- For possible emergencies, preventive and restrictive actions should be determined and informed.
- Possible environmental accident or emergency (scenarios) should be explained in detail.
- Detailed diagrams should be established showing the locations of activities associated with the identified risks.
- Planning storage measures should be taken for the possibility of fire spreading and explosion caused by hazardous chemicals.
- Activities to be done before and after an emergency should be planned.
- Emergency response methods should be determined.
- The names, duties and responsibilities of ADME members should be determined and their training should be given. Determining the team and providing the trainings are the responsibility of the employer or his representative.
- Names, duties and responsibilities of first aid team members should be determined and their training should be given. All first aid personnel must be first aid certified by the ministry.
- Contact phone numbers should be determined and announced where necessary.

- Necessary intervention and combat equipment should be determined in advance and kept in suitable places so that the intervention can be made as soon as possible.
- Evacuation routes must be open at all times and known to personnel. Evacuation routes should be explained by the team leaders before each job.
- All necessary precautions should be taken against the possibility of sabotage. Vehicles must be searched at entrances and exits. Personnel should not be employed without the necessary investigation. Entrances to the work and construction site should be made with a card and their controls should be provided.
- Necessary drills should be made against the possibility of natural disasters and for emergencies and improvements should be made according to the deficiencies.
- Equipment suitable for emergency response should be kept intact in predetermined areas and should be checked at least once a month. No equipment should be exposed to deformation or decay during storage.
- The ambulance unit will regularly check the transportation routes at least twice a day. It will notify the relevant section chief about the missing issues on the transportation roads.

8.2. Approval and Implementation of the Emergency Plan

The Employer or Site Supervisor is responsible for approving and enforcing the Emergency Plan and providing resources for emergency equipment and training.

8.3. Preventive and Limiting Measures

- The employer takes the necessary measures to prevent the damages that may be caused by possible and probable emergencies and to limit their greater effects.
- Measures and evaluations are made, if necessary, while determining measures to protect against the negative effects of emergencies.
- The measures to be taken will comply with the principles of protection from risks and are based on collective protection.

8.4. Emergency response and evacuation methods

- Emergency response methods such as warning, search, rescue, evacuation, communication, first aid and fire fighting in case of emergencies are determined and written down/ made written by the employer.
- Necessary controls, including census, are carried out to identify employees who may have remained in the workplace after they are evacuated.
- In the event of emergencies in the workplace, the employer specifies the appropriate evacuation arrangements that can be followed in the emergency plan to ensure that employees can go to a safe place from their location in order to protect themselves from the negative effects of this situation, and he/ she gives the necessary instructions to the employees in advance.
- If there is an elderly, disabled or pregnant person in the workplace, measures are taken to accompany them during the evacuation.
- While establishing emergency response and evacuation methods, the provisions of the Regulation on the Protection of Buildings from Fire, which was put into effect with the

Council of Ministers Decision dated 27/11/2007 and numbered 2007/12937 are taken into account.

- While establishing emergency response and evacuation methods, other people on site such as suppliers and visitors are also taken into consideration.
- In an emergency, the priority is the safety of the employee. In case of an emergency, if the load is in the air in lifting operations, the priority is to lower the load to the ground in an additional short time and leave the area. All machinery and equipment must be assured first, and the area must be left after the energy is cut off so as not to cause an accident.

8.5. Updating the Emergency Plan

- The emergency plan will be fully or partially renewed depending on the size of the impact if any changes that may affect the identified emergencies within the workplace or cause new emergencies occur.
 - a) The emergency plan of the MERSİN-ADANA-OSMANİYE-GAZİANTEP HIGH STANDARD RAILWAY LINE CONSTRUCTION AND SUPPLY OF ELECTROMECHANICAL SYSTEMS PROJECT, which is in the very dangerous class, will be renewed at least once every 2 years in accordance with the regulation.

8.6. Determination of employees to be appointed

ADME, fires, explosions and chemical leaks etc. It consists of employees who can be trained in responding to emergencies such as The selection of ADME members is made by the Employer or the Site Manager.

In our field, 1 person for 30 employees;

- For each of the subjects of search, rescue and evacuation,
- Fire fighting
the assigned staff member/ personnel with appropriate equipment for each of the said subjects shall be appointed. If there are more employees in the workplace, one more support person is assigned for every 30 employees.
- First aid team
One tenth of the number of employees must be certified first aiders approved by the ministry. Even if there is more than one employee, one more first aider must be present.

The employer assigns support personnel in accordance with the principles of the First Aid Regulation published in the Official Gazette dated 29.07.2015 and numbered 29429.

In workplaces where more than one employee should be assigned for each subject, these employees work in teams in coordination according to their subjects. Each team has a team leader.

A responsible person is appointed by the employer from among its employees in order to ensure the necessary coordination between teams in emergencies.

8.7. Emergency Responsibles, Duties and Working Procedure

The management and ADME shall be responsible for implementing and causing to implement this plan. The first person witnessing the incident for active intervention for emergency shall inform relevant unit about emergency as soon as possible.

Once the first person witnessing the incident report emergency, it shall provide concise and final information regarding what kind of assistance is required for the scene, type of incident and how the incident has exactly occurred.

8.7.1. Obligations and Responsibilities of the Employer and Employees;

The obligations and responsibilities of the employer and employee defined in the Regulation on Emergencies at Workplaces are listed below.

Employer liabilities

1) The employer's obligations regarding emergencies are as follows:

- Identifies possible emergency situations by preliminarily assessing the emergency situations that will affect the employer and working environment which may occur considering the working environment, materials used, working equipment and environmental conditions.
- Takes measures to prevent and limit the adverse effects of emergency situations.
- Makes necessary measurements and assessments to avoid adverse effects of emergencies.
- Prepares emergency plans and executes drills.
- Taking into account the size of the workplace and the specific hazards it poses, nature of the work done, number of employees and other persons in the workplace, employs the sufficient number of trained and qualified personnel in the fields of prevention, protection, evacuation, fire fighting, first aid and similar matters, and ensures that they are always available in order to respond to emergencies.
- Makes necessary arrangements to provide contact with organizations outside the office, especially in the areas of first aid, emergency medical intervention, rescue and fire fighting.
- Makes necessary arrangements for emergency deactivation of energy sources and dangerous systems in such a way as not to create adverse conditions and not to affect the protective systems.
- Informs the employees and the employer who established the temporary business relationship if any, and other persons in the workplace such as customers and visitors.

2) The responsibilities of employees assigned specifically for emergencies do not immediately remove employers' liability for the issue.

Liabilities and Responsibilities of Employees

1) Employees' obligations regarding emergencies are as follows:

- To comply with preventive and restrictive measures taken within the context of the emergency plan.

- To immediately notify the nearest supervisor, the responsible person assigned for the emergency, or the employee's representative when they encounter an emergency which will endanger the health and safety of themselves and other persons in machinery, equipment, vehicles, equipment, facilities and buildings of the workplace.
 - To comply with the instructions of the employer and the teams outside the workplace that are dispatched to the scene of the emergency to be remedied.
 - To act in such a way as not to jeopardize the lives of themselves and their colleagues during emergencies.
- 2) To allow them to intervene within the framework of information and existing technical equipment in order to prevent undesirable consequences when they encounter with a serious and near hazard against the employer, the employees themselves or other people and when they cannot inform their supervisors immediately. In such a case, employees can not be held responsible for their actions unless they are negligent or careless.

8.7.2. Identification of Responsible Persons, Duties, Authorities and Responsibilities within the Scope of ADEP

Emergency Crisis Center (Desk): It meets under the chairmanship of the project manager, depending on the nature of the emergency. It makes the necessary decisions as an external eye within the information of the personnel in the field. It decides whether there will be entrances and exits to the construction site. Decides the rating of emergencies. Makes necessary referrals in accordance with emergency degrees. He decides to end the emergency. Provides necessary explanations. In cases where it is necessary to make a statement to the national and local media, the head of ADKM makes the statements.

Head of Emergency Crisis Center: is the Project Manager In the absence of the Project Manager, the acting Production Manager presides. Manages the Emergency Crisis Center. It approves the decisions taken. When necessary, it informs the relevant units.

Emergency Coordinator He decides to convene ADKM together with the project manager. Coordinates the emergency situation. (Construction Site Chief)

Emergency Chief: Provides control of emergency equipment. Coordinates emergency teams during field response.

Field sweeper team: After all evacuations are completed, the responsible HSE supervisors of the floors come to the emergency assembly area after making checks. Communicates situations that require intervention to the responsible HSE supervisor.

Emergency Response Teams: It consists of search and rescue evacuation, fire, energy intervention, protection and first aid teams. Teams and team leaders are determined. Reserve teams are also included in the determined lists.

HSE Supervisor: Each supervisor has a meeting point for which he or she is responsible. If there is an event that needs to be intervened in the area they are responsible for, they intervene



together with the emergency chief. Reports the data of the assembly point they are responsible for to the Crisis Center. In case the employees are sent out of the field with the decision of the crisis center in the region they are responsible for, they create the list of outgoing employees.

Fire Fighting Team The fire team will make the first response to the fire, and if the fire cannot be extinguished with the construction site facilities, it will help the intervention under the coordination of the called municipality fire team.

Rescue Team: If there is such a case, they first rescue the living creatures, then they prepare the documents, files and other items to be rescued in the fire, with the help of those present and under the supervision of the team leaders, in sacks and bags if possible, ready to be emptied. Bags and sacks shall be carried to the areas not having danger of catching fire yet of the workplace in case deemed necessary of workplace authorities. First priority in rescue is HUMAN. There may be injured, burnt, suffocated, poisoned, unconscious or dead person in fire location. Rescue team shall firstly rescue such persons and shall deliver them to first aid team.

Second priority is to keep off explosive substances, alcohol, thinner, LPG tubes, tank etc. likely to harm employees in case of catching fire obstruct works and preventing expansion of fire on fire location (if any).

After satisfying the above mentioned items, other materials shall be rescued according to their order of priority mentioned on their labels and shall be delivered to protection team. Personnel in charge with rescue team knows procedures of carrying injured persons and is assigned as two persons like in extinguishing team. If the rescue team does not use a smoke mask with a clean air tube while performing their duty, they will not enter the smoke line.

Rescue Personnel Working at Height (Rope Access Technician): Rescue Personnel should have technical competence, be cool, have the ability to use technical materials, have the ability to manage operations, have leadership qualities, use time correctly, and have a high level of communication persuasion ability.

Protection Team: They keep the evacuated goods and documents in a place to be indicated by the security forces or institution officials and deliver them to the relevant authorities after the fire is extinguished;

Taking environmental safety and not allowing those who are not authorized.

It will catch suspicious persons.

Passage roads of fire brigade vehicles shall be kept clear.

Preventing looting, robbery and chaos.

Taking materials rescued from fire under safety.

First aid team They provide first aid services for those who are injured or sick.

They will make the first intervention.

The first aid team will be composed of people with certified first aid training.



The first aid team assists the injured from outside the smoke line.

The assembly area is next to the fire truck with the ambulance unless otherwise ordered.

First aid team will first give its current report from the radio channel GENERAL during its transfer to the area or when it arrives at the area.

While making the first response to the rescued personnel, the personnel will report their identity to ADKM via the radio channel GENEL.

The transfer of the rescued personnel to the hospital will be made by ambulance teams, if the area has been reached first.

Evacuation Team: It will ensure that personnel go to emergency assembly points through safe evacuation routes when an emergency occurs. He will make sure that all employees in the area he is responsible for are evacuated. It will assist the technical team for counting at the assembly points. Team heads and foremen will assist this team. In the absence of personnel in the evacuation team, this task will be undertaken by the foreman and team heads.

Transportation Team: Persons in charge with transportation team are responsible for transporting the injured persons to the nearest hospitals. It ensures that the materials and extinguishing materials needed by the fire response team are transported to the area.

Energy Resources Intervention Team If a power cut is required, the relevant section chief will decide. The personnel to be assigned by the section chief will perform the cutting process. The first priority will be the safety of the employee.

Persons in charge of the energy resources response team; It is responsible for cutting or commissioning the electricity, natural gas, pneumatic air and dangerous chemical lines specified in the emergency plans and going to the emergency area. Employees are assigned for each zone and floor and appointed as floor supervisor. During commissioning, the entire line must be checked. If LOTO is required, it should be energized in accordance with the procedure.

Section Supervisors When emergencies occur, they work in coordination with the HSE supervisor in the region they are responsible for. It decides to intervene in energy or infrastructure lines when necessary and directs the personnel who will make the intervention.

Camp and Office Area Emergency Team: Emergency teams are formed for camp and office areas. These teams take charge in emergencies that may occur in the camp and office area.

Security head and unit: To ensure the general safety of the field. Assisting the HSE unit in emergencies. To take necessary measures to prevent emergencies such as sabotage and fights.

Environmental Accident Emergency Team: It is the team that will intervene in environmental accidents by being informed by the emergency chief in environmental accidents.

Working methods;

- It is essential that emergency response teams cooperate with each other and provide mutual assistance.
- Emergency response teams ensure that their equipment needs are provided by notifying the Emergency Chief.
- Assignments in the emergency response teams are determined according to the training, adequacy, experience of the personnel and, if any, the obligations in the laws, and if necessary, necessary training is provided.
- All employees should be informed about the emergency plans and the people assigned to search, rescue and evacuation, fire fighting, first aid.
- Those assigned specifically for emergency issues are specially trained on the activities they will carry out.
- ADME members are trained on what to do in the event of chemical leaks, fires, injuries, earthquakes and extreme weather problems.
- First aid is provided only by people who have a first aid certificate approved by the ministry, and these employees work as first aiders in ADME.

Tower Team: In order to carry out the rescue work, a team of at least 3 (2 main and 1 spare) must be established for each tower crane and this team must have received Basic First Aid, Working at Height Training and Work Area Specific Rescue Training.

Ground Team: In order to meet the unloaded employee, place him on the stretcher, fix him and transport him to the health unit, a team of 5 (4 main and 1 reserve) must be established and this team must have received Basic First Aid and Work Area Specific Rescue Training.

8.7.3. People and Places to Have an Emergency Plan

The original copy of the Emergency Plan is retained by the Employer or the person deemed necessary by the Site Manager. Controlled copies of the plan are given to the following personnel:

- Each member of ADME
- (2) Pages of Emergency plan shall be enumerated; each page of this shall be signed with initials and final form shall be exchanged and the said plan shall be stored in the workplace at ease.
- The sketch of the relevant section prepared within the scope of the emergency plan is kept hanging inside the building where it can be easily seen.

9. Emergency Equipment

Emergency Equipment is placed in places deemed appropriate by the management. The type of emergency equipment that can be used at the construction site depends on the activities and is determined by the management.

9.1. Rescue Tools

The tools and equipment listed below should be kept ready in order to intervene as soon as possible in case of emergency.

- - Ambulance
- Liberator
- Rescue kit
- Types of stretchers
- Tripod
- Rescue Triangle
- Fall Arrester
- Static rope
- Supporting materials
- Rescue & Towing Line
- Safety belts, helmets, gloves and other personal protective materials
- Power Generator
- Iron shears, pickaxe, shovel, sledgehammer
- Concrete breaker gun working with compressed air
- Electric Breaking Machines (Hilti)
- Electric Circular Saw
- Compressed Air Compressor
- Backhoe and loader machines
- Water tank
- Water Pump
- Fire Extinguishers
- Fire extinguisher cabinets (The distance between the two cabinets will not be more than 45 meters.)
- Backhoe and loader construction equipment

In case of jamming, the Cutting Motor will be supplied by the fire department of the Municipality.

9.2. Tools and Equipment Required in the Ambulance

The tools and equipment that should be in the ambulance are listed in Table 1.

Tablo 1. Ambulance Equipment List

No.	Equipment	Min Quantity
1	Main Stretcher	1
2	Combination Stretcher	1
3	Vacuum Stretcher	1
4	Dustpan Stretcher	1
5	Back board	1
6	Traction Splint Set	1

7	Inflatable Splint Set with Minimum 6 Different Pieces	1
8	Neck Collar Set	1
9	KED rescue vest	1
10	Fixed Oxygen cylinder and socket	1
11	Portable oxygen cylinder*	1
12	Transport Ventilator device (adjustable to pressure [10-50 cmH2O] suitable for adult and pediatric use, with PEEP valve)	1
13	Fixed Vacuum extractor	1
14	Portable extractor fan*	1
15	Fixed sphygmomanometer (with stethoscope)	1
16	Portable sphygmomanometer (with stethoscope)	1
17	Oximeter*	1
18	Thermometer	1
19	Diagnostic set (otoscope, ophthalmoscope, rhinoscope)	1
20	Drip stand (IV pole)	2
21	Injector pump	1
22	Defibrillator (with Display)	1
23	Resuscitation unit (Balloon valve mask set, laryngoscope set, portable oxygen tube, intubation tubes, airway tube, oro/nasopharyngeal cannulas, colorimetric device)	1
24	Heat insulated container	1
25	Oxygen mask and nasal catheters (set)	1
26	Aspiration catheters (3 different sizes)	1
27	Various sizes of urinary catheters and bags	1
28	Various sizes of injectors	10
29	Emergency delivery kit	1
30	Burn kit (Aluminum burn blanket, burn wrap and compresses or burn gel)	1

31	Basic medical equipment bag (containing ring cutting scissors, tourniquet, sterile sponge, compress, astringent material, bandage, elastic bandage and plaster)	1
32	Intratracks with serum set and butterfly set	5
33	Personnel duty suit (with reflective)	2
34	Bodybag	2
35	Blood sugar glucose meter	2
36	Capnometry	2

- Relevant emergency preparedness and response measures will be taken during emergency situations arising at the construction/work sites and Camp Sites.
 - During the state of emergency, the employer must enable employees to perform work remotely (i.e. outside of the employer's business premises (teleworking and work from home)), at all workplaces where such work can be organized in line with the general enactment (i.e. the employment rulebook or collective bargaining agreement of the employer, whichever is applicable) and the employment contract.
 - If the general enactment and the employment contract do not provide for the possibility for remote work, the employer may issue a decision allowing for work outside of the business premises, if organizational conditions allow so. Such a decision must contain the duration of working hours and the manner of supervision of the work of employees. The employer is obligated to keep records of employees who work outside of the business premises.
 - If the nature of the activity of the employer does not allow for organization of work in the manner provided above, such an employer must adjust its operations to the conditions of the state of emergency as follows:
 - arrange shift work, if possible and without requiring additional resources, so that as few persons (employees and all other engaged persons) as possible work simultaneously at one premises.
 - enable that all business meetings are held via electronic or other appropriate means (video link, video call, etc.);
 - postpone business trips in Turkey and abroad, in accordance with the authority's ban / temporary restriction of entry and movement.
- In order to ensure the protection and health of employees, engaged personnel and clients, employers must provide all general, special and extraordinary measures related to the hygienic safety of facilities and persons in accordance with the Law on Protection of Citizens from Contagious Diseases.
- For employees and engaged personnel who are in direct contact with clients or share a workspace with multiple persons, it is necessary to provide sufficient quantities of protective equipment in accordance with special regulations.

Regarding climate change risk, the related measures will be taken during operation phase by TCDD:

- A database of assets, including buildings that are vulnerable to one or more of the following should be compiled: excess rainfall; drought; fluvial flooding and/ or coastal flooding.
 - Ensure that there is better recording of, and attribution to, weather conditions alongside incident reports where relevant (all climate variables).
 - Capture and assess delay minutes associated specifically with rainfall-related incidents and failures (high precipitation)
 - Identify any regional variations in the exposure of assets to rainfall-related risks (high precipitation)
- Weather-related staff and workforce safety standards and procedures should be reviewed and improved.
 - Establishing relevant thresholds and definitions of 'appropriate' forms of PPE to be issued in different weather conditions.
 - Establishing requirements for different working hours in different seasons/ conditions (all climate variables)
 - Better understanding of the effects of cold weather on staff health and safety and decision making (low temperatures)
 - Better recording and action to reduce cases of slips in stations from wet and icy conditions (low temperatures, high precipitation)
 - Limiting the exposure of staff working and walking in high temperatures and high humidity, which will reduce risk of dehydration, sunburn, heat stress and heat stroke (high temperatures)
 - Establishing consistent and effective standards and procedures for staff to deal with flood emergencies (high precipitation, high sea levels and storm surges)
 - Reducing the need for staff to undertake routine tasks and inspections during adverse or extreme weather events by increasing the use of automation or remote monitoring (all climate variables) should be considered.
 - A feasibility study for installing temperature monitoring equipment both inside and outside trains (high temperatures, low temperatures) should be undertaken.
 - Examine cost-effective ways of reducing risks to trains, passengers and freight from adverse or extreme weather.
 - How on-board internal temperatures during hot weather can be reduced e.g. by painting roofs or sides of trains with heat reflective paint or coatings (high temperatures)
 - Whether certain types of rolling stock or particular train components are more susceptible to icicle formation during periods of low temperatures, in order to identify mitigation options (low temperatures)
 - Design and maintenance options which can increase the resilience of existing and new rolling stock to flooding and water ingress (high precipitation, high sea levels and storm surge)
 - Whether certain types of rolling stock perform better than others during autumn conditions (high precipitation, high winds)

- The location of all critical lineside equipment and equipment cabinets should be established. As part of this, research to obtain data about observed temperatures at these locations (external, internal, ambient and surface) and flood risk of all types (high temperatures, high precipitation, high sea levels and storm surges) should be undertaken.
- Options for heat and flood risk mitigation measures based on current good and best practice knowledge and research outputs from relevant sectors e.g. the power and energy sector (high temperatures, high precipitation, high sea levels and storm surges) should be identified. For example, high internal temperatures are often managed by air conditioning systems. This tends to be a high maintenance option which is susceptible to failures
- Overhead Line (OHL) failures due to high temperatures according to whether the OHL is fixed or auto tensioned type (high temperatures) and to better understand OHL problems due to ice build-up (low temperatures) should be examined.
- Monitoring and metering of heating, electricity and water for rail buildings (e.g. stations, depots and larger equipment cabinets) and concessions (e.g. shops in stations) should be introduced. This will help to manage energy, water usage and carbon emissions, and the targeting of efficiency measures (high temperatures, low temperatures, and low precipitation).
- It should be examined how climate change will affect long-term thermal comfort on board trains. For example, whether adjustments need to be made to sizing and performance criteria for heating and cooling systems (High temperatures, low temperatures).
- The Operator should review the current vulnerability of OHL assets to wind including the impact of trees, branches and third-party objects which cause OHL shorting through contact.
- Undertake a study to improve the resilience and structural integrity of OHL supports due to high winds combined with soil movement.
- The Operator should ensure whether buildings maintain the temperatures required by the equipment (high temperatures, low temperatures)
- The Operator should explore opportunities for increased use of radar, or satellite observations to manage weather and climate-related risks.
- The Operator should have a focus on lineside management issues which affect infrastructure. More specifically;
- The Operator should develop and implement research options for long-term vegetation strategies to ensure the stability of earthworks and soil structure and reduce risks from high winds, leaf fall and flooding of all types given projected climate change.
- The Operator should review available machinery and equipment that can install drainage at the same speed and volumes as the other track installation equipment to achieve efficiencies (high precipitation)
- The Operator should study the effect climate change might have on the occurrence of lineside fires (high temperatures, low precipitation, lightning, and electrical storms).
- As climate science develops, relevant stakeholders representing all systems need to engage with key providers of weather/ climate data and information. This will improve

understanding of the impacts on the railway and allow data to be applied in the railway context.

- The Operator should identify opportunities for shared learning and collaboration with highways, aviation, electricity, and other sectors relating to intelligent infrastructure and information communication technologies. This will help prepare for and respond to extreme weather and changes in average or expected climate conditions (all climate variables).
- The Operator should consider re-locating or re-routing the most vulnerable and costly assets based on the business case developed as a short-term recommendation including modal shifts (e.g. shifting from rail to road, air or sea travel) (high precipitation, high sea levels and storm surges)

9.3. Types of Stretchers Used in Rescue

9.3.1. What is a stretcher?

The stretcher is a medical device that is used to transport the sick, casualty and injured from one place to another. There are models with wheels that are pushed as well as those carried by people.

9.3.2. Features of the stretcher

There are types that are especially developed to carry the injured vertically or horizontally in narrow spaces and difficult conditions, those that are permeable to X-rays, those that are used to transfer the traumatized casualty to the stretcher with minimal movement, and that when vacuumed, they harden by wrapping the injured and completely immobilize the injured.

There are models with different features depending on the physical condition of the patient or the injured and the environment in which they will be transported, such as transfer stretchers, especially designed for fire, sea, air and debris rescue work.

9.3.3. Types of stretchers

Conical Stretcher: Conical stretcher is specially designed for rescue in tight and confined spaces. It ensures that the casualty is protected from external factors and remains safe after being taken to the stretcher during the rescue. Confined areas, restricted areas for rescue (such as Pipes, Wells) It is the best stretcher solution for rescue operations in vertical areas and rescue operations in horizontal areas.



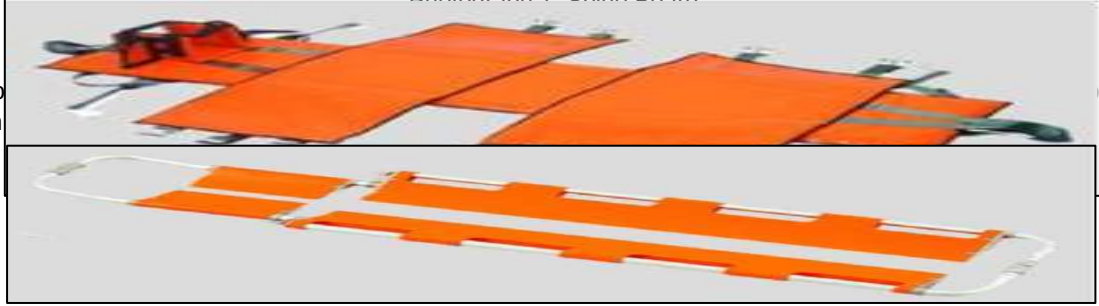
Photograph Conical Stretcher:

Spine Board: It provides comfortable carrying with its light weight and the multitude of hand grip points in spinal injuries. It provides the possibility of fixing the casualty on the stretcher by using the connection apparatus.



Photograph.1. Spine Board

Spoon
them



ening

Photograph.2. Spoon Stretcher

Vacuum Stretcher: When the soft stretcher is vacuumed, it hardens by enveloping the injured and the patient is completely immobilized. Special PVC material, resistant to friction and tearing, is an indispensable product for immobilization and safe transfer of injured in trauma injuries.

Photograph.3. Vacuum Stretcher

Neil Robertson Stretcher: It gives the possibility of carrying the injured vertically or horizontally in narrow areas. It can be used with all standard spine boards. It is resistant to flaming, friction and tearing. The head stabilizer attached to the body is used with lifting columns and carabiners.

9.3.4. Stretcher Usage Features

- The casualty must be transported without being shaken
- The victim must be secured against falling



height

downloads.



EMERGENCY NUMBERS	Who's calling? Describe Yourself Report the phone number where you can be reached.
Municipal Fire Brigade: 112	My name is....."You can reach me at this number" Do not hang up unless told.Make sure the information is transmitted correctly.Be prepared to provide more information if asked. Contact crisis management immediately after hanging up.
Ambulance 112	
Police Help 112	Where: The name of our location (exactly the name of the building, its elevation and block number)
Gendarmerie 112	
Water Failure 185	HOW IS THE STATUS OF THE ACCIDENT:The full condition of the injured casualty should be explained. False information should not be given.
Electrical Failure 186	
Gas Failure 187	WHEN: Specify when the event occurred (day, hour, minute)
Spiritual Counseling 182	WHAT HAPPENED?: The event should be briefly described.
Poison Advisory 114	HOW MANY PEOPLE ARE AFFECTED: It should be stated how many people were affected by the incident. The companies of the planted ones should be reported.

Emergency communication hierarchy;

- In emergencies, the employees first notify their first supervisor and the responsible HSE supervisor of the region.
- Supervisor The emergency chief and the responsible HSE supervisor of the area provide the necessary information.
- After the accuracy of all information is confirmed, the HSE manager is notified.
- According to the urgency of the situation, the ambulance or fire department is informed by the HSE supervisor.
- HSE Manager conveys the necessary information to the board of directors, HSE coordinator and project manager.
- ADKM is convened if deemed necessary by the emergency coordinator.
- If an outside intervention team is required to the construction site due to the emergency, the Emergency Chief calls the necessary teams within the knowledge of the Emergency Coordinator.
- When necessary, energy cut-off is made by the relevant regional section chief.

- In case of emergency, the Project Manager coordinates the necessary information to the local or national press.
 - When an event with loss of life occurs, the Project manager makes the necessary notifications.
 - Termination and notification of emergencies;
 - ADKM decides to end the emergency.
 - With the directive of ADKM, the responsible HSE supervisors make the necessary explanations in the assembly areas.
- In the event of an emergency, the radio shall not be used for any communication other than the emergency. Channel assignment will be made for each assembly area by the crisis center.

13. Emergency Grades

1. Degree: Serious Accidents with major consequences;
(Earthquake, Flood, Large-scale storm, Large-scale fatal fires, Sabotage, Fatal collapses, Fatal accidents.)

REC AMBULANCE

(Tel: 112)

(Radio Channel: Ambulance)

The sketches and telephone numbers of the hospitals closest to our construction site are written in the appendices.

2. Degree: Serious Injury accidents;

(Situations that may cause loss of function and require intensive care; Arterial cuts, Brain trauma, Life-threatening situations.) It is sent to the hospital with the direction of the relevant doctor in the construction site infirmary.

REC AMBULANCE

(Tel: 112)

(Radio Channel: Ambulance)

The sketches and telephone numbers of the hospitals closest to our construction site are written in the appendices.

3. Degree: Injury accidents;

(Fractures, Dislocations, Severe burns, Severe bleeding cuts, etc.), Medium Storm, Fires that may result in severe injuries, Collapses that may result in severe injuries). It is sent to the hospital with the guidance of the relevant doctor in the construction site infirmary.

REC AMBULANCE**(Tel: 112)****(Radio Channel: Ambulance)**

The sketches and telephone numbers of the hospitals closest to our construction site are written in the appendices.

4. Degree: Minor Injury accidents;

(Without loss of function; Conscious injuries, Acutely painful conditions, Non-life-threatening situations, Crush, Slight burns, Slight bleeding cuts, etc.) Treatment is provided in the infirmary or in the hospital with the decision of the workplace physician.

REC AMBULANCE**(Tel: 112)****(Radio Channel: Ambulance)**

In cases where the rec ambulance goes to the hospital outside the construction site, if the need for an ambulance occurs, the Rec infirmary unit will make the necessary organization with the knowledge of the HSE manager.

It will be used over the radio (ambulance channel).

14. Emergency Evacuation Plans

It is the Emergency Chief's responsibility to announce the evacuation plans by hanging them close to the main entrance gates and in other suitable places. These plans show the locations of the nearest exit doors, spare doors, alarm buttons in dormitory and office areas, external assembly points, fire extinguishers, first aid vehicles and other key elements according to the site conditions. That primary evacuation routes defined for personnel and primary evacuation doors are close shall be explained or in cases where in cases where evacuation is not possible from those doors, what spare evacuation doors in case of emergency are shall be elaborated.

Evacuation Drills are held twice a year. Place, time of exercise and ADME members participated and names of other officials and results of exercise shall be stated in "Exercise Minutes" executed hereof and recommendation in regard to reducing evacuation time and increasing entire check shall be made.

14.1. Assembly points

There are 4 assembly points. It is included in the plan in Annex 26. It will be revised as necessary. Each assembly point has responsible personnel. These responsible persons will provide the necessary communication and coordination.

15. Actions to be Taken in an Emergency Situation

ADME shall be prepared against any emergency and shall intervene quickly, actively and safely against emergency. Operations to be performed in case of a real accident or emergency are listed below on general terms. However, in some cases, the following operations need to be re-listed or be in parallel state.

15.1. Warning

The direction and coordination of the ADME regarding the emergency is the responsibility of the Emergency Chief. The emergency chief makes the necessary information to the emergency coordinator. The ADME meets at the point specified by the emergency chief.

15.2. Evacuation

In case of any situation threatening human life, ADME shall keep off the employees from affected area. The decision to evacuate the employees is made by the Emergency Chief and Emergency Coordinator. Employees are requested to evacuate the area by walking regularly along the routes determined in the evacuation plans.

In case of alarm or announcement, ADME and safety officials shall ensure proper performance of evacuation. It shall be avoided that employees are in panic and they collect their personal belongings. When the employees leave the field, if the accident or emergency area is safe enough, the sweeping team will come to the emergency assembly point by making final checks and roll calls. If there is something that needs to be intervened, he will inform the responsible HSE supervisor of the region.

15.3. Counting Employees in Gathering Points

There will be a queue at the assembly point. The relevant supervisors will take a count in front of the queue and convey the number to the responsible HSE supervisor of the region. The numbers received will be reported to the crisis desk and compared with the turnstile entry numbers. If there is a lost employee, ADME shall immediate warn the members and name and surname of lost person and its last seen location shall be duly notified. The responsible HSE supervisor of the region will make the necessary coordination. In the absence of the HSE Supervisor, the authorized person appointed will do it. All coordination will be informed to the Crisis Center. Unless the crisis desk is informed that the danger has passed, employees are prevented from entering the area.

15.4. Rescue Operation in the Event of an Accident

The emergency chief, who receives the emergency notification, ensures that the rescue team gathers at the assembly areas. After giving the necessary information about the type, size and location of the emergency to the rescue team leader and the team; The team leader ensures that the team gets the necessary equipment, work tools and work machines and personal protective materials for the rescue operation.

In case of need for a vehicle, all vehicles belonging to the construction site can be used by licensed emergency teams.

15.5. Transport of the Injured

When found injured, they are carefully transported out of the relevant area by a search, rescue and evacuation team member using only appropriate personal protective equipment. Depending on the condition of the casualty, the injured person is transported to the nearest hospital by ambulance by the ambulance team. In case of multiple casualties it may be necessary to wait for another ambulance to arrive. The occupational physician makes all the decisions regarding the transfer of the injured person.

15.6. First Calls to External Source

In an emergency, if the ambulance at the construction site is insufficient, the workplace physician will request an ambulance from outside. The necessary information will be given to the emergency coordinator.

In case of inadequacy of the fire brigade and rescue teams at the construction site, the emergency chief will call the fire brigade and/or rescue team from outside, if necessary, after informing the emergency coordinator.

15.7. Operation in Environmental Accidents

When there is a chemical material or fuel leak, the environmental accident emergency team gathers in the assembly area after the emergency notification is made. Inside the leaking chemical overflow containers; first measures against the danger of fire or glare are taken, then chemical materials are taken into empty barrels with the help of a pump. The chemicals taken in empty barrels are marked as waste and disposed of. The inside of the overflow container is cleaned with oats, granules or pads. Wastes are disposed of in hazardous waste containers. If the spilled chemical or fuel leaks from the overflow can and spreads around; it is surrounded with wood flour or filler sand and impregnated. Impregnation is done with granules or pads.

15.8. Interruption of Some Units and Services

In case of emergency, interruption of gas, electricity, water systems and other services may need to be disconnected. The section chief decides to intervene in energy or infrastructure lines when necessary and directs the personnel who will make the intervention. All necessary information is given to the crisis desk.

15.9. Installation of barricades

If necessary, the emergency area is surrounded by barricades or barriers. An isolated zone is created that prevents entry by anyone other than ADME. It is closed to entry and exit until a fully secure environment is created.

15.10. Information Transfer to Employees

HSE officers warmly convey information to employees in order to eliminate their concerns. All or some part of employees shall be permitted to go their homes in their remaining



overworking time depending on severity of emergency. If this is done, the names and addresses of the allowed employees are noted by the responsible HSE supervisor of the region.

15.11. Check back of for employees to the building

The crisis desk determines and announces when it will be safe to enter the relevant building or construction site (in line with the data from the field). Each assembly area responsible holds an information meeting at the assembly point where they are located. Otherwise, except for the exceptions, employees will not be allowed to re-enter the building or the construction site.

15.12. Closing Meeting

Emergency crisis desk, HSE Supervisor responsible for the area where the accident or emergency occurred, and a team consisting of the section chief, Emergency Chief, Emergency Coordinator, workplace physician, legal expert and team leaders, a meeting is held after the accident or emergency situation. Problems encountered during the situation are evaluated. Required corrective/preventive actions shall be defined for minimizing likelihood of recurrence of accident or emergency in the future and shall be handled by ADME. The final results of the meeting are announced to the employees by the regional supervisors in order to reduce the concerns.

15.13. Reporting Accident or Emergency

ADME shall perform inspection in the field by using appropriate PPE and shall review accident or emergency incidents. The reason of accident or emergency shall be clearly defined and reviewed by ADME and it shall be reported in a way that shall incorporate place of incident, its occurrence time, its reason, results and recommendations for not to repeat the incident again.

16. Action Style to Follow in Emergency Situations

16.1. First Person to See / Hear the Emergency Situation

In emergencies, the situation of being injured and the cause of the emergency are checked. If there is an injured person or if the incident is big, he first calls the Ambulance with the number (112) and then immediately warns the people around with a loud voice. Informs the authorized person (first supervisor, regional supervisor, emergency chief) by phone and/or radio. Those who do not have a first aid certificate will not interfere with the injured.

The information includes at least the following information.

- Where is the incident?
- What kind of incident?
- Is anyone hurt? If so how many people?
- It gives information about its own identity.
- It also receives the " UNDERSTANDED " approval from the other party.

- First of all, it acts in accordance with the instructions according to the cause of the emergency, ensuring its own safety.

16.2. Emergency Informed Emergency Chief

- It tries to get the following information from the person giving the news.
 - Where is the incident?
 - What kind of incident?
 - Is anyone hurt? If so how many people?
 - It receives information about its own identity.
 - Says "DONE" and hangs up the radio/phone.
- The situation is forwarded to the Emergency coordinator.
- There is a wounded person and if the ambulance has not been called, he calls the Ambulance with the number (112) and asks for an ambulance to come to the scene.
- It organizes everyone gathered at the meeting point to help the current job. In this context, it meets the needs of the personnel fighting the fire (transporting the foam liquid, cooling the walls outside the smoke limits, preparing the hoses, providing communication, etc.).
- It ensures that the fire brigade continues its activities until it comes to the scene and begins to intervene in the incident.
- Informs the fire department about the current incident, risk areas and activities.
- It meets the aid requested by the fire department.

16.3. Emergency Coordinator who got the news

- It takes over the management and administration.
- If evacuation is necessary, it enables the operation of the emergency siren.
- Provides the necessary direction and coordination if a case occurs that requires the technical team to intervene.
- If necessary, it initiates the evacuation of the personnel to the assembly area.

16.4. Emergency Crisis Center (Desk):

- It ensures that the counts of the personnel in the assembly area are checked over the Emergency Plan counting lists and the results are reported to him.
- He requests information from the security about the number and status of visitors at the construction site.
- Within the scope of the activities carried out at the same time, it ensures that the Emergency Response Teams, together with the Emergency Coordinator, intervene in the emergency within the framework of the Emergency Action Plan and ensures that the developments are reported to him.
- Instructs the Emergency Chief to initiate a search and rescue activity in the emergency impact area, if the personnel in the assembly area are missing in the counting results.

16.5. Action Style of All Employees in Alarm

- After the alarm, all employees go to the counting group notified to them in the assembly area as soon as possible, taking necessary actions depending on the type of event (for example, making the first response to the fire, cutting the energy of the equipment they use, etc.).
- They act in accordance with the information and instructions given to them without panicking.
- Employees who come to the emergency assembly point are prohibited from smoking. It is forbidden to engage in behavior that will cause panic and confusion. A queue is formed at the assembly point and technical personnel (former, team head, etc.)
- The telephone/radio is not occupied unnecessarily.
- If there is a dangerous situation detected by the employees, they notify the regional supervisor.

16.6. Post-Emergency Action Style

- The Emergency Crisis Center (Desk) makes the necessary notifications to the field and, if necessary, to the official authorities after the emergency is over.
- The emergency assembly area officer, who receives the information that the emergency is over, informs the employees.
- An Emergency Evaluation Meeting is held and a report is created.
- In accordance with the report created, the deadlines are given and the relevant units are assigned and the missing issues are corrected.
- If a statement is to be made to the press and the public, a statement is made through the text prepared in advance and approved by the head of the crisis desk, depending on the magnitude of the event.
- After the emergency, technical and administrative personnel come together and conduct a detailed examination. After the examination, the reasons for the occurrence of the emergency, negligence and those responsible, etc. detected and an emergency report is prepared.

17. EMERGENCIES

17.1. Fire

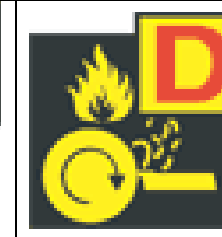
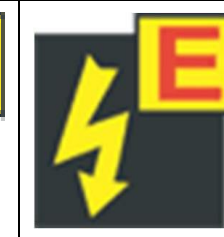
17.1.1. Fire Definition

The chemical event that occurs as a result of the combination of the substance with heat and oxygen and this is called **combustion** . In order for combustion to occur, flammable material, heat and oxygen must be present together. This event is called the "Fire Triangle". Uncontrolled burning incident that occurs other than the fire that is burned for the purpose of utilization is called **FIRE** .

Classification of Fires and Types of Fire Extinguishers to be Used

The type of fire depends on the substance burning. Therefore, we can classify fires in five classes.

Table 3. Fire Classification and Extinguishing Techniques

Types of Fire	Class A Solid	Class B Liquid	Class C Gas	Class D Metal	Class E Electric
Types					
Flammable substance	Paper, Wood, Cotton etc.	Paint, Thinner, Oil, Fuel etc.	Natural Gas, Methane, LPG, (Propane+Butane), Acetylene etc.	Magnesium, Aluminum, Sodium etc.	Power tool and panel
Extinguishing Method	Cooling, Prevention of Combustion	Prevention, Suffocation, Cooling	Prevention	Cooling, Suffocation	Blocking, Suffocation
Extinguisher Used	Water, ABC powder and foam extinguisher,	ABC and BC powder, CO2 and foam extinguisher	ABC and BC powder, CO2 gas extinguisher	Extinguisher with only D powder	Halon and CO2 gas extinguisher

In General

- Dry powder fire extinguisher "for all types of fire"
- Foam fire extinguisher "for solid and liquid fires"
- Water fire extinguisher "for solid fires"
- CO2 gas fire extinguishers can be used in electrical panels, where there are valuable electronic devices such as computers or servers.

EXTINGUISHING PRINCIPLES

Extinguishing with Water Cooling: It is the most used one among the principles of extinguishing by cooling. During water evaporation, it provides cooling by absorbing a high amount of energy from the fire environment. The resulting steam also has a suffocating effect by preventing the burning material from meeting with oxygen.

Dispersing Combustible Material:By dispersing the burning materials, the high heat that causes the fire is divided, the split heat decreases and the fire gradually goes out. This type of extinguishing is not applied in fuel fires.

Block Air ...: To eliminate the contact of oxygen with the combustible material.

Covering: It is the blocking of oxygen by burning material using solid materials or chemical compounds. Chemical compounds that form a cover are used in fuel fires. While the foam used in fuel fires prevents the burning material from meeting with oxygen by forming a cover on the

burning material, it also performs an effective extinguishing by cooling and preventing the formation of steam on the surface of the burning material.

In fuel oil fires, the fire should not be considered as extinguished due to the fact that it does not prevent the flammable vapor output that will cause explosion / flashing in the activities of extinguishing the flames without using foam.

Suffocation: It is the event of blocking or reducing the interaction of fire with oxygen.

In order to extinguish Class A solid fires, the oxygen concentration ratio should be reduced below 3%.

Inflamed combustion occurs at a concentration ratio of 21 to 15%, and at oxygen concentrations of 14 to 3% (solid combustible material fires covered with soil can continue to burn even after 24 hours).

For extinction to occur, the oxygen concentration must be reduced below 3%.

As long as foam is not used in inert gas stationary suffocating systems or fuel fires, extinguishing fires with the suffocation technique generally does not yield successful results.

Elimination of Flammable Material: If the burning materials are eliminated, the burning triangle cannot be formed. Therefore, the fire is extinguished.

Extinguishing techniques and use of Extinguishing device are shown and explained in Table 4 and Table 5.

Table 4. Fire Fighting Techniques

WRONG	CORRECT
 <p>Standing against the wind</p>	 <p>To take the wind at your back according to its direction. In confined space fires, approaching the fire by leaning and tightening the tube in the bent position</p>
 <p>Interfering with the burning place from above and from behind</p>	 <p>Sweeping from the front and outer border of the burning place to the other side with 3 second intervals and withdrawing to the safe area while waiting</p>
 <p>Responding to fires caused by pressurized fuel</p>	 <p>Close the valve from the safe area first.</p>

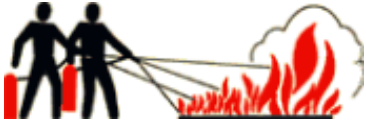
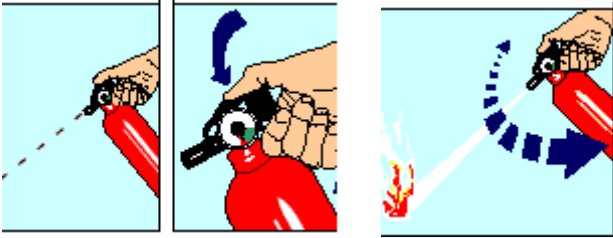
	<p>Intervention picogram</p> <p>3-5 m</p>
<p>To use fire extinguishers consecutively or to use existing fire extinguishers from different directions at the same time</p>	<p>While one person is extinguishing in a closed area, the other person takes the safety of the extinguishing personnel.</p>
	
<p>Leaving the fire area without making sure that the fire is completely extinguished</p>	<p>Leaving the fire area after making sure that the fire is completely extinguished</p>

Table 5. Use of Extinguishing Device

<p>Pull the Pin on the Trigger</p> 
<p>Remove the Hose from its Housing</p> 
<p>Aim the fire extinguishing media at the base of the fire with 3 seconds of intervals.</p> 

Registration and Protection of Equipment

The first sign to be rescued in the fire will be placed on the documents and items that need to be protected and rescued during the fire.

BLACK Y ON RED BACKGROUND: Will be rescued first in the fire.

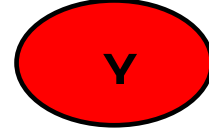


Figure1. Label to be placed on the first goods and documents to be saved in a fire

17.1.2. Possible Emergencies and Preventive, Limiting Measures

Situations and precautions that may cause fire are explained below.

Failure to Take Protective Measures: Fire, electrical contact, heating systems, LNG tank, fuel tank, pressure tubes, flammable-explosive materials are not adequately protected. If the electrical energy components are made according to the technical conditions, the pressurized cylinders and fuels are used correctly, the chimneys of the heat center are cleaned and the necessary precautions are taken for flammable-explosive materials, there will be a significant reduction in the fire disaster.

Ignorance and neglect: Failure to inform the employees about situations that may increase the fire load causes a fire. Awareness will be raised by providing informative trainings to the employees. Be careful and meticulous against fire.

Jumping It is always possible for a controlled fire to spread or explode as a result of negligence or lack of knowledge. For this reason, the study area should be limited. Materials that may cause combustion should be collected before work. A fire watcher should be assigned and a fire blanket will be used to prevent splashing.

Sabotage: It is the possibility of deliberately setting a fire for various purposes and gains. Security investigations should be made at the entrance to employment. The entrance of the employees to the field should be kept under control. Controls and monitoring should be carried out by competent personnel during the works.

Natural Events Fire may occur as a result of lightning strikes and similar natural events. Precautions should be taken to place lightning rods.

Failure to Provide Order: The lack of order in the working areas is one of the biggest causes of fire. Before starting the work, the work area should be collected and waste/residual materials with high combustion potential should be removed.

Measures to be Taken Against Fire

Chemicals:

- All chemicals should be stored in properly labeled and closed containers.

- Where chemicals are used, only as many chemicals as necessary should be available and all containers used should be labeled.
- SDSs of chemicals must be available in the warehouse area. It should be stored in accordance with SDSs.
- SDS information of chemicals should be communicated to employees.
- Chemicals stored or used in the field should be kept in overflow containers and pans where spills will accumulate despite chemical spills. Overflow containers should be suitable for the amount of chemical stored.
- Lighting and electrical installations of chemical storages will be watertight. If necessary, ex-proof equipment and lighting system should be used.
- All electrical systems of the warehouses will be controlled outside the warehouse.
- The chemicals in the warehouse will be properly labeled and stored according to the storage conditions.
- Necessary grounding equipment will be made inside and outside the warehouse, both in cabinets and shelves, and for the personnel.
- Fresh air intake should be continuously provided in the warehouses. For this purpose, aspiration should be done especially at the base level.
- Chemicals should be kept away from ignition sources.
- Personnel working with chemicals should wear cotton overalls. Synthetic clothing can accumulate static electricity.
- Smoking areas should be created on the field and a smoking ban should be applied throughout the field.

Flammable Gases

- Gas pipes must be in good condition and placed in such a way that they do not overheat.
- Combustible gas cylinders should be stored separately as empty and full. Storage areas should be covered and direct exposure of the tubes to the sun should be prevented.
- Gas valves that are not in use must be closed completely.
- Gas cylinders must be connected against falling.
- Gas cylinders must be on their protective caps no matter what.
- The work area should not be left while using flammable gases. Combustible gas must be blown through the hose during or after work.
- Flame check valve should be used.
- The hoses used in the cylinders must comply with the standards.
- There should be gas detectors for gases used in places where flammable gases are operated.
- In case of detection of gas detectors, it should be ensured that the main gas valve is automatically closed with the help of solenoid.
- "No smoking" and "caution approaching with fire" signs should be posted in appropriate places in the work environment.

- In the environment working with gases, fresh air intake should be provided continuously. Measurements of the required gas class should be made and if the amount of gas is suitable for work, work should be done.
- The names of those responsible must be hung in places where flammable gas is stored. Contact numbers must be available.
- Those working with flammable gases must have a Professional Competence Certificate.
- Necessary training should be given to those working with flammable gases.
- Appropriate fire extinguishers should be available.

Electrical Panels, UPS, TRANSFORMER, GENERATOR

- Oily cloth and lint used for cleaning and maintenance should be disposed of in garbage bins with a lid that provides ventilation.
- Lightning rods and grounding cables should be checked periodically.
- "No smoking" and "caution approaching with fire" signs should be posted in appropriate places in the work environment.
- Sufficiently suitable type (ABC powder and/or CO2 etc.) fire extinguishers and other fire extinguishing equipment should be kept ready for active use.
- Automatic fire detection detectors should be placed in appropriate places.
- All electrical equipment should be checked monthly and updated color coding should be applied.
- The power generator should be refueled only by the responsible person.
- All necessary precautions should be taken while refueling the power generator.

Material / Equipment Storage

- The areas determined as warehouses in the work area should be closed in a way to prevent the entrance of irrelevant people and should be marked with the relevant occupational safety signs.
- Warehouse doors, shelves and tables must be of suitable strength and fireproof.
- Warehouse doors must open outwards.
- There should be order in the warehouse.
- Chemicals should be stacked in a different area from other equipment and materials and by taking appropriate precautions according to their type.
- Necessary extinguishing tools should be available according to the storage situation and material potential.
- Smoking should be strictly prohibited in warehouses. Relevant plates must be placed.
- Highly combustible and heat resistant materials are checked frequently.
- Electrical installation, cable connections, plugs and sockets should be checked every week according to a plan and checklist, and defective and damaged ones should be replaced.
- In storage, flammable materials should not be stored on the upper shelves close to lighting and heating devices.
- If necessary, electrical equipment and lighting should be used with explosion-proof feature.

Heat Center

- Smoking is strictly prohibited in and around the heat center
- Periodic checks of the boilers in the heating center
- Periodic checks of lightning rods, grounding lines
- Availability of sufficient number of suitable type of fire extinguisher cylinders and other fire extinguishing equipment available for active use.
- Placing automatic fire detection detectors in appropriate locations

Hot Works

- Hot works will only be carried out by competent and certified personnel.
- Work permit will be taken for hot works.
- At least one person in the hot working team will have received fire watcher training.
- Before the work begins, the area will be limited and all materials with high combustion potential will be removed.
- By using a fire blanket during operation, the dispersion of sparks and burrs will be prevented.
- During the work, there will be fire extinguishers in suitable numbers and features.

Open Areas

- Combustible wastes such as weeds, paper, rags and pieces are cleaned, the cut grass is not burned and taken out of the construction site.
- Fire extinguishers should be available to be used until the fire brigade arrives. The fire crew will take precautions against fire in a way that will not put themselves and others at risk.

17.1.3. Emergency Response Methods

The priority in the fire is to ensure the safety of the employees who will respond. The fire department should be notified immediately. Employees should de-energize nearby machinery or equipment if possible. It should be ensured to go to the “Emergency Assembly Point” without panicking by using the pre-determined and announced emergency exit routes.

The things to do in the emergency area at the time of fire are listed below.

- Do not panic.
 - If the fire is small, extinguish the flames you can see by intervening with a portable fire extinguisher and inform your first supervisor and the REC OHS supervisor/emergency chief.
 - Leave the empty cylinder horizontal. Inform the relevant supervisor to fill the cylinder.
- If the fire is too big for you to fight or is behind a closed door

- Inform those around you by voice.
- If there is a fire alarm button in your location, press it, otherwise inform your first supervisor to sound the emergency horn,
- Notify your supervisor and the site's responsible HSE supervisor/Emergency chief.
- Cut off the energy of the Machine-Equipment you are working with,
- Check the door handle (Hot surfaces should always be checked with the palm of the hand, not the palm). Never open the door if the door handle is hot.
- Move the material against the wall in the adjacent rooms adjacent to the fire area away from the wall.
- If you have a first aid certificate, give first aid to the injured,
- If there is no casualty, move safely to the assembly area by using the emergency exit route (if there is an item to be rescued first in a fire, take it with you).
- Do not pass through a completely smoke-covered area on the emergency escape route.
- Move as close to the ground as possible.
- While performing this, do not endanger yourself and others.
- When you come to the assembly area, do not forget to inform your first supervisor if you have a friend who you were with during the work but is missing in the assembly area,
- Meanwhile, teams intervene on the condition with their team leaders within their job descriptions. From the moment the fire brigade arrives, they become the assistant of firefighters.

If the fire is behind a closed door but the doorknob is cold

- Inform those around you by voice.
- If there is a fire alarm button at your location, press it, otherwise inform your supervisor to sound the emergency horn,
- Notify your supervisor and the site's responsible HSE supervisor/Emergency chief.
- Cut off the energy of the Machine-Equipment you are working with,
- Check the door handle. If the door handle is cold, open the door as far as you can see (approximately 10 cm) by staying close to the floor and on the hinge side of the door that opens inwards (this should always be done by two people, one person should be responsible for opening and extinguishing the door, while the other person should ensure the safety of the personnel who open the door).
- If you can see the flames, approach the fire by staying close to the ground and use the dry chemical powder fire extinguisher as a sweep for 3 seconds (Gas extinguishers are used continuously until the flames go out.)
- Regardless of whether the flames are extinguished or not, go out of the room after 3 seconds and observe the fire and wait for the dust to settle (approximately 10-20 seconds).
- If the flames are not extinguished, re-enter the room at the end of this period and repeat the same process.

- If the flames are out, do not re-enter the room (especially in liquid flammable fires, it is vital to withdraw to a safe area after the use of the fire extinguisher).

Combustible liquid with extinguished flames will produce flammable vapor in the process. Re-flashing may be in the form of flashing or explosion depending on the amount of vapor accumulated in the area. It is vital that you withdraw to the safe area at the end of the extinguishing and cannot enter the area until there is a re-ignition. Flaming means you are safe from the risk of fire or explosion.

- If the flames started again or you could not extinguish the flames, repeat this process until the flames are extinguished after the dust settles.

Fuel Tank Fire Response

- Pool capacity will not cause diesel oil to overflow.
- In order to prevent a short circuit in the electrical panel in the area, it should be cut off from the energy switch by the head of the relevant section.

The things to do in the area at the time of the fuel tank fire are as follows.

- Inform the fire brigade.
- Notify the district supervisor and the emergency chief
- If there is any injured, inform the ambulance and provide its intervention.
- Do not approach the fire and ensure that the area is limited.
- Assist the crew if necessary after the fire brigade arrives.

Application by Fire Brigade

- Fire truck will be parked outside the heat limit that will occur from the fire.
- Foam will be pressed with the fire truck.
- If it is necessary to apply foam to the tank surface with 2 lengths of hose from the vehicle and a 200 lt/min foam lance, it can be applied from above using the vehicle ladder.
- The foam will be used as a pan on the tank surface and 2 lt/min. per square meter of total tank area. It should be applied as a sweeping motion to provide cooling.
- No water will be applied to the pool surface.
- When the flames are extinguished, the cooling will be stopped in order to prevent overflow.

General Warehouse Area Fire

Stacking in the warehouse should not interfere with the emergency response. A sufficient number of KKT fire extinguishers are available in the chemical warehouse. Chemical materials are stored in accordance with the storage matrix. It is intervened with a fire extinguisher in the appropriate class for the chemical. The team that will intervene in the chemical will definitely use an air-independent breathing system. The place where the firefighters will approach must be checked. The field electrical isolation must be cut from the energy switch.

The things to do in the General Warehouse area during the fire are listed below.

- In case of fire, leave the warehouse immediately.
- Inform the district supervisor, emergency chief and fire brigade.
- Have the warehouse personnel convey detailed information when the fire brigade intervenes.
- Assist the fire brigade when necessary.

17.1.4. Drills

Fire drills will be made within the plan scenarios to be determined at the workplace. Fire drills will be held at least twice a year. All personnel will participate in the drill within the scenario and their course of action will be followed to reflect the reality. In the light of the reports to be prepared after the drills, deficiencies and erroneous behavior will be seen and it will be expected to be more successful in each drill compared to the previous one.

17.1.5. Training

Preventive and limiting measures for fire should be passed on to employees. The Occupational Health and Safety Department will determine, coordinate and implement the training topics that will be needed regarding the issues that may be encountered at every stage of the fire response, and plan and execute the fire drills that will be held at least every 6 months. Before each work, the routes to the emergency assembly points will be explained in detail to the employees by the first supervisor.

17.1.6. Actions to be Taken After Fire

16.6. Applications under the heading Post-Emergency Action Style are done completely.

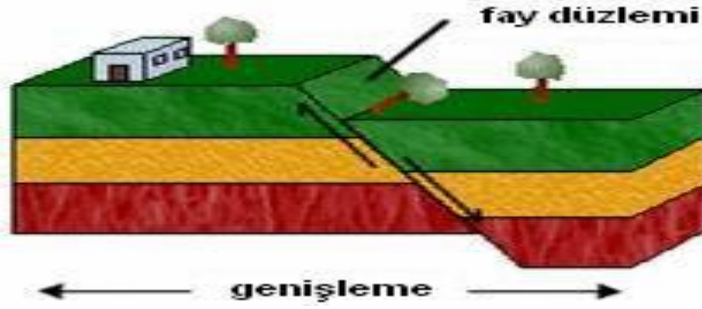
17.1.7. Post-Intervention Evaluation

After the emergency response, the form in Annex-23 will be filled by the emergency team and negative, delays and or positive observations will be stated in this form. After the incident, the forms will be evaluated by the emergency team chief and corrections will be made in the procedure if necessary.

17.2. Earthquake

17.2.1. Definition of Earthquake

The event of shaking the environment and the ground surface where the vibrations that occur suddenly due to the fractures in the earth's crust spread as waves and are called EARTHQUAKE. In other words, it is the seismic waves caused by a break in the supply, reaching up to the supply surface and shaking it.



17.2.2. Possible Emergencies and Preventive Limitations

Possible emergencies include a fire during an earthquake, the danger of collapse, overturning, the collapse of the employees, the collapse of the floor or deck, the collapse of the infrastructure and / or the inability to provide service. There are no preventive measures for earthquakes. But the limiting measures are as follows:

- Ground reinforcement
- Fixing cabinets in office and warehouse
- Safe placement of large tools and equipment that may tip over
- Planning the construction site considering the earthquake and its effects
- All employees receive training on what to do in an earthquake
- Evacuation plans showing emergency exits are visibly hanging on the construction site
- For each of the subjects of search, rescue and evacuation,
- Providing earthquake-related training to the search, rescue and evacuation team
- Drilling
- Search and rescue equipment

17.2.3. Action During Earthquake

The things that the employees in the building should do are listed below.

- Wait until the earthquake effect passes in the closest sheltered area,
- Protect yourself in case of bending and holding at points that will create a life triangle, such as the sides of the fixed machine body, the sides of the solid goods.
- Heavy objects should not be placed on high places in construction sites (offices, dining halls, warehouses, WCs, etc.). Non-slip-based covers should be used to prevent the items and materials that must be placed from slipping and falling.
- In the working area, there should be no objects that can fall or flow on the floor coverings, shaft and cavity edges. Large and heavy equipment should be attached to the floor or wall.
- Stay away from building edges, shafts and elevator shafts.
- Protect yourself from large and heavy materials that could topple or fall.
- Stay away from electrical panels and rooms.
- When the earthquake effect is over, go out of the nearest emergency exit and go to the assembly area,



- The second earthquake may recur so stay calm,
- Do not use phones except in extreme emergencies.
- Stay away from areas where there is a danger of glass breakage. Leave areas with glass ceilings immediately. If you cannot be abandoned, go to the nearest safe area.

The things to be done by the employees in the administrative building are listed below.

- Wait until the earthquake effect passes in the closest sheltered area,
- Stay away from large and heavy materials that can tip over or fall.
- A solid table, furniture, etc. Protect yourself next to the object and hold on to it.

If aisle, stockrooms, etc. The things to be done by employees in areas where there are materials that may fall are listed below.

- Get down to the wall
- Do not stand on the threshold (the door will slam and you will be injured).
- Do not stand at the bottom of a shelf or any objects that may tip over.
- Protect your head and face.
- Avoid windows, glass partitions, mirrors, stoves, bookcases, tall materials and loose structural elements.

The things that the employees in the Workplace Open Area should do are listed below.

- Stay where you are.
- After the earthquake is over, try to go to the nearest assembly area by staying away from windows, buildings, electrical cables and transformers.
- If you are on the edge of a slope or in a pit, immediately go to a sheltered place.

Things to do in Forklifts, Trucks, Construction Equipment and Special Vehicles are listed below.

- Try to dock the vehicle in a safe place.
- Stop the vehicle from running, apply the parking brake if possible.
- Do not park vehicles or construction equipment on or near the slopes.
- Stay away from manholes and pits.
- Be careful not to block the road.
- Try to park as far away from buildings as possible.

If you're in a Large Community, here's what to do

- Take refuge in a spot where you will not be crushed.
- If you're inside, you'll be able to see the collapsed scaffolding, structures, etc. Do not run outside as it will crash.
- Stay away from windows, projectors, and shelves filled with heavy items.
- Wherever you are, be prepared for the possibility of the ground moving violently. Cover up, put yourself under the protection of a solid object. If you can't do this, get

down on the ground, cover to protect your head and face. Be prepared for other quakes that will follow the first one.

Crouch: Because crouching decreases the target, reducing the risk of injuring you from the elements that will fall on you.

PROTECT: Cover your head and neck with your arms. Protect yourself by taking a FETAL position next to or under a trench. This trench can be solid items such as tables, consoles, chairs.

WAIT Hold on until the shaking stops. It is dangerous to run or climb the ladder during the jolt. You will not be able to move during the shaking.

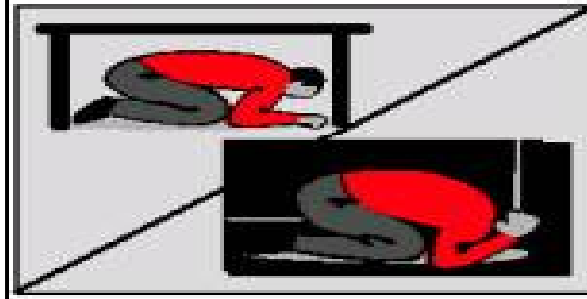


Image1. Safe Standing Position in an Earthquake

17.2.4. Actions to be taken after Earthquake

16.6. Applications under the heading Post-Emergency Action Style are done completely.

17.2.5. Post-Emergency Evaluation

After the emergency response, the form in Annex-23 will be filled by the emergency team and negative, delays and or positive observations will be stated in this form. After the incident, the forms will be evaluated by the emergency team chief and corrections will be made in the procedure if necessary.

17.3. Torrent and flood

Regarding flooding and flood risk, these mitigation measures should be taken by REC and PIU:

- State Hydraulic Works and relevant local institutions will be consulted for buildings/structures to be operated in flood risk areas.
- Stockpile of excavates and other materials will not be in the vicinity of river or flood basins, where this is impossible, barriers will be constructed to prevent sediment discharge to surface water bodies
- State Hydraulic Works and relevant local institutions will be consulted for buildings/structures to be constructed in flood risk areas.
- Build pumping stations in flood-prone locations at sensitive essential infrastructure to enable flood water to be quickly pumped away when needed.
- Incorporate flood resilience measures when renewing the lines in flood prone areas, including where feasible installing the tracks and signalling equipment at a higher level so it's less likely they'll be impacted by flooding.

- Where suitable, deploy flood defence systems, including barriers with a membrane that seals to prevent water getting through, and inflatable barriers filled with water.
- In case a flood does occur, above-mentioned precautions and measures should be followed and the incidents, interventions, and the results should be elaborately recorded for further inquiry.

17.3.1. Torrent and Flood Definition

Torrent is defined as a flood, which is caused by constantly falling rain or melting snow, damaging the places it passes through. Flooding will be considered as water accumulation in the construction site in a way that will prevent and affect normal operation.

17.3.2. Possible Emergencies and Preventive, Limiting Measures

Drowning, damage to employees and materials, dents, electric shocks, landslides, overturning of machinery and equipment are among the possible emergencies.

Control, cleaning and maintenance of rainwater channels and infrastructure line that have the potential to affect the construction site are among the preventive activities. Materials that may react with exposed water will be stored in areas above the ground such as pallets or shelves. In case of possible flood, energy and water resources should be closed. It should be ensured that the equipment (submersible pump, generator, etc.) to be used during and after the flood is ready.

The use of necessary equipment to change or cut the waterway is provided under the coordination of the emergency chief, within the knowledge of the emergency coordinator. The camp and office area will be used as a safe place for flooding. For each of the subjects of search, rescue and evacuation, The search, rescue and evacuation team will be/will be given training on flooding.

Areas where flooding may occur should be identified. In case of water inflow, suitable materials should be left for sanding or closing which areas and points will be closed.

17.3.3. Emergency Response Methods

In case of flood and flood, the necessary coordination will be managed by the emergency chief in the knowledge of the Emergency coordinator. Section chiefs will support the activities. Power lines will be cut off by the instruction of the section chief. Employees trapped by the evacuation team will be rescued. The first aid team will respond to the injured employees. The accumulated water will be evacuated by the section chiefs. Employees will act as stated below.

- Wait in a safe and elevated position.
- If there are missing personnel in your team, notify the regional supervisor and the emergency chief.
- Assist the teams when necessary.

17.3.4. What to Do After Torrent and Flood

5.6. Applications under the heading Post-Emergency Action Style are done completely.

17.3.5. Post-Emergency Evaluation

After the emergency response, the form in Annex-23 will be filled by the emergency team and negative, delays and or positive observations will be stated in this form. After the incident, the forms will be evaluated by the emergency team chief and corrections will be made in the procedure if necessary.

17.4. Stroke of Lightning

17.4.1. Lightning Strike Definition

Lightning is an electrical discharge that balances the increased electrical potential between the earth and the clouds.

17.4.2. Possible Emergencies and Preventive, Limiting Measures

Fire as a result of lightning strikes, surges of employees, damage to energy transmission lines and electrical and electronic equipment are among the possible emergencies. During thunderstorms / lightning storms (charged weather), all personnel in the open will gather in closed buildings (such as administrative building, dormitory) that are safe zones and wait for the rains / lightning to pass. No one will be out in the open, be under lightning-attracting material, use an umbrella, or stay under a tree in any way. Lightning rods will be found in tower cranes and grounding connections will be made. Lightning rods will be installed on the buildings in living spaces and offices, and grounding connections will be made. Vehicle parking areas will be determined and lightning rods will be built there. Lightning rods will be checked every 6 months. Financial loss is also determined in the regions affected by lightning strikes.

17.4.3. Emergency Response Methods

If a fire occurs as a result of a lightning strike, the fire response methods in heading 16.1.3 should be applied. If employees have been affected by a lightning strike, an ambulance should be called and intervention by the relevant authorities should be expected. The emergency chief and district supervisor should be informed about the situation. During thunderstorms / lightning storms (charged weather), all personnel in the open will gather in closed buildings (such as administrative building, dormitory) that are safe zones and wait for the rains / lightning to pass.

17.4.4. What to do after a lightning strike

After a lightning strike, the equipment in the area should be checked. If necessary, maintenance and repair works should be carried out by competent persons.

17.4.5. Post-Emergency Response Evaluation

After the emergency response, the form in Annex-23 will be filled by the emergency team and negative, delays and or positive observations will be stated in this form. After the incident, the forms will be evaluated by the emergency team chief and corrections will be made in the procedure if necessary.

17.5. Environmental Pollution and Chemicals

17.5.1. Definition of the Environmental Pollution and Chemicals

Pollution: It is the damage to the environment in case of leakage, leakage, spread that may occur in the chemicals used, kept and stored in the workplaces.

Chemical substance: All kinds of elements, compounds or mixtures which are found in nature or are produced or that occur accidentally as a result of any process or as a waste.

Hazardous Chemical Substance:

- Substances with one or more of the following characteristics: explosive, oxidizing, very easily exacerbated, irritating, toxic, very toxic, harmful, corrosive, irritant, allergic, carcinogenic, mutagenic and materials with one or more properties which are hazardous against reproduction or environment.
- Substances that do not fall into the above-mentioned classifications, but may pose a risk to the health and safety of workers due to their chemical, physico-chemical or toxicological properties and the way they are used or kept in the workplace,
- Substances of which the occupational exposure limit values have been determined.

Explosive Substance: They are solid, liquid, pasty, gelatinous substances that can react exothermically with sudden gas evolution even without atmospheric oxygen and/or spontaneously explode upon heating when partially closed, or explode under specified test conditions, quickly glowing.

17.5.2. Possible Emergencies and Preventive, Limiting Measures

Poisoning, explosion, burning, etc. in case of leakage, leakage, spread of chemicals used, kept and stored in workplaces. emergencies such as Working with hazardous chemicals should be carried out with appropriate methods, taking into account technological developments, providing appropriate machinery and equipment, determining chemical storage areas, keeping Material Safety Data Sheets (SDS) of used chemical materials with the materials, using and storing chemical materials in line with the information obtained from SDSs, storage of chemical materials Placement of adequate capacity on leak-proof pans during operation, periodic controls of machinery and equipment where chemical materials are used, informing employees about the chemical materials they use, proper storage of chemicals according to their properties and dangers, appropriate ventilation in the areas where chemical materials are used, unauthorized employees entering the areas where chemical materials are stored. Prevention, appointment and training of warehouse supervisors are among the preventive activities. Provision of personal protective equipment suitable for chemicals for employees, personal protective equipment, ensuring the correct use of employees, establishing fire fighting and search and rescue evacuation teams, providing training to the relevant emergency teams/recruiting them, creating evacuation plans in order to evacuate the construction site quickly in case of possible chemical spills or leaks , hanging evacuation plans in visible places throughout the field and in office areas, placing an appropriate number of gas detectors in appropriate places in case of gas emission, providing adequate control, supervision and surveillance to ensure the effectiveness and continuity of the measures taken, working with

dangerous chemicals with a minimum number of employees, The amount of substances that workers will be exposed to and the exposure times should be as low as possible, there should not be more dangerous chemicals in the production area than the amount required for the work done, the work area should always be regularly and Keeping it clean, providing suitable and sufficient conditions for the personal cleaning of the workers, having spill kit and sand in certain areas are among the limiting measures. There is a chemical spill bag. In the bag; There are chemical absorbent pad, chemical protective gloves, FFP2 Dust mask, protective glasses, Cleaning brush, Dustpan, Waste bag for chemicals.

Methods of responding to chemical leaks may vary depending on the nature and amount of leaked materials. Therefore, it will be determined which chemicals (collectively stored solvents, gasoline, etc. flammable/flammable, corrosive, poisonous, explosive chemicals) and in what quantities are present at the construction site. Material safety data sheets (MSDS) and labels will be used to identify the hazards created by each chemical.

Safe Storage of Chemicals

- In accordance with the class of the chemical and if extra precautions are specified in its SDS, appropriate storage will be made (Table 9).
- Storage areas should be labeled according to chemical type and hazard class.
- Warehouse areas should be inspected frequently/at certain times.
- All chemicals should be stored in pans with suitable carrying capacity during storage.
- Warehouse areas should be well ventilated, and a constant and appropriate temperature should be maintained in the warehouses.
- Fire sources should be eliminated, open flames, direct sunlight and exposure should be prevented. Especially flammable chemicals should be stored in a way that is protected from heat sources and sunlight.
- Emergency aid equipment (fire extinguishers, etc.) should be kept in easily accessible places, ready for use and out of the area of influence.
- Chemicals should be prevented from spilling, dispersing and reaching water channels. Dripping or spilling areas should be cleaned immediately.
- Toxic and very toxic chemicals and explosives should be stored in an independent section or cabinet.
- Material safety data sheets for all chemicals should be provided (SDS).
- Labels of packaged chemicals must comply with the standards.
- The maximum allowable storage quantities should be clearly visible on the storage shelves.
- Precautions should be taken to prevent the material from falling from the storage shelves.
- Glass-type, fragile containers should generally be stored below eye level.
- Warehouse buildings must have safe drains against spills and leaks.
- Warehouse racks and doors must be grounded.
- Marking should be made on the warehouse door in accordance with the safety and health signs regulation.
- Fire safety precautions must be taken in the warehouse.
- A ventilation system suitable for the characteristics of the chemical substance should be installed.

- There should be necessary barrier material and appropriate personal protective equipment (PPE) against chemical spills and leaks.
- Warehouse supervisors with company stamps should be posted at the warehouse entrances.
- Unauthorized persons should be prevented from entering the warehouses and the door should be locked.
- Electric heaters should not be kept in the warehouse.

Table 6. Chemical Storage Matrix and Hazardous Material Storage Matrix

17.5.3. Emergency Response Methods

In case of environmental pollution, the district HSE supervisor and the emergency chief are informed. The emergency chief leads the environmental team. The environmental team ensures that in any environmental pollution event that occurs, the spread of the polluting material to the environment (barrier, impregnation, scoop, net or other elements) is prevented. It intervenes within the SDS information by wearing the necessary personal protective equipment. If the chemical cannot be controlled, cleaned or if it burns, it notifies the fire department.

All pressurized combustible cylinders used in MERSİN-ADANA-OSMANİYE-GAZİANTEP HIGH STANDARD RAILWAY LINE CONSTRUCTION AND SUPPLY OF ELECTROMECHANICAL SYSTEMS PROJECT site; hazardous chemicals should be stored outside the working area in areas determined by the main company/in cases where it is not possible, in areas where safe points will be determined, they should be appropriately labeled and it should be ensured that Material Safety Sheets are available. In the event of an incident involving dangerous goods, the following principles must be followed:

- The Emergency Response plan must be followed.
- The Emergency Coordinator should report the incident and its magnitude.
- SDSs describing the relevant substance should be provided by the Emergency Response Team.
- If it is not immediately possible to estimate the content of the substance, the precautions outlined in the SDSs identifying the most hazardous materials stored on site should be taken.
- Ensure that response personnel are wearing appropriate personal protective equipment (PPE).
- The wind direction at the time of the incident should be evaluated.
- If injured personnel are present, medical attention should be sought and first aid administered according to the SDSs.
- Firefighting equipment should include SDS summaries.
- If there is more than one material, the possibility of chemical reaction should be known and the expert should be consulted.

- All sources of ignition and extinguishing must be turned off (open flames, heaters, electric motors).
- The incident should be investigated and any potential hazards to personnel and facility should be assessed.
- Appropriate control measures should be initiated when a gas and oil spill is confirmed to occur. E.g; equipment must be turned off and work stopped.
- Make sure that all sources of ignition are turned off.
- It must be confirmed that all responsible personnel are protected from free smoke.
- If control measures are effective and the emergency is resolved, sacrifices should be made to emergency response efforts, third parties are notified, and the scene is guarded.
- If control methods are ineffective, steps should be taken for partial and full evacuation of the site.
- Documentation of failures and preparatory actions should be fully reported. When checking for a gas leak, a trained or authorized person should use respiratory protection and gas equipment.

17.5.4. What to Do After an Emergency

The collected wastes are sent to the special chemical waste warehouse to be sent to the relevant waste separation facility with the coordination of the environmental team. Used spill kits are replaced with new ones. 16.6. Applications under the heading Post-Emergency Action Style are done completely.

17.5.5. Post-Emergency Evaluation

After the emergency response, the form in Annex-23 will be filled by the emergency team and negative, delays and or positive observations will be stated in this form. After the incident, the forms will be evaluated by the emergency team chief and corrections will be made in the procedure if necessary.

17.6. Sabotage

17.6.1. Definition of Sabotage

It is defined as intentional actions and behaviors aimed at preventing the normal functioning of a service, a business institution or making an installation, a machine, a facility unusable.

17.6.2. Possible Emergencies and Preventive, Limiting Measures

Forms of Sabotage

Sabotage is generally divided into two according to the way they are made and the material used:

a- Active Sabotage:

- [1] - Fire
 - [2] - Explosive Substance,
 - [3] - Mechanical,
 - [4] - Bacteriological and Chemical,
- b- Passive Sabotage:**
- [1] - Intellectual,
 - [2] - Psychological,

The following measures should be taken actively and passively against sabotage.

- The outside of the entire workplace must be protected.
- The inside and outside of the entire workplace should be illuminated.
- Security personnel should be present day and night in the entire workplace.
- Necessary alarm systems should be installed.
- The necessary and necessary wired or wireless communication system should be established.
- Places with special conditions (boiler room, electrical panels, data processing server room, etc.) must remain closed and closed, entrances must be made by authorized persons.
- The entire construction site should be monitored 24 hours a day with security cameras.
- Necessary warning signs must be available.
- The number of entrances and exits should be minimized and doors should be kept under control.
- Fire warning, warning and extinguishing systems should be established.
- Necessary protective measures should be taken in floor windows that are low above the ground.
- Due to their suitability for sabotage, necessary sensitivity should be shown especially in loading, transportation, transportation, unloading and use of explosive, flammable, flammable, caustic material.
- Coming and going to all workplaces should be kept under control. Identity should be asked in large and central units and records should be kept when necessary.
- Vehicles must be searched at entrances and exits. Under the vehicle should be searched with a mirror or camera system.
- Personnel should be made aware of the trainings.

17.6.3. Emergency Response Methods

In case of suspected sabotage, the actions of those in the region are listed below.

- Inform the Private Security Unit without wasting time,
- Completely follow the instructions of the security supervisor.
- Do not engage in behavior that will endanger your life safety.
- If evacuation has been ordered, go to the nearest assembly area.

The security chief who receives the information informs the emergency coordinator. If assistance is required from law enforcement or related units, the project manager is called to

the construction site within the knowledge of the project manager. Suspicious territory is restricted. Entry and exit to the area is prohibited. With the decision of the project manager, entrance and exit to the construction site are prohibited if necessary.

17.6.4. What to Do After an Emergency

Employees are informed after the danger of sabotage. Necessary research is carried out. If a criminal situation is required, a disciplinary procedure is applied. If there are persons who need to be handed over to law enforcement, they are handed over to law enforcement. 16.6. Applications under the heading Post-Emergency Action Style are done completely.

17.6.5. Post-Emergency Evaluation

After the emergency response, the form in Annex-23 will be filled by the emergency team and negative, delays and or positive observations will be stated in this form. The forms will be evaluated by the Emergency Chief after the incident and corrections will be made in the procedure if necessary.

17.7. Occupational Accidents

17.7.1. Definition of Occupational Accidents

Occupational accidents are accidents that cause injury or death to a person or cause mental harm during the work carried out in a workplace or outside the workplace.

17.7.2. Possible Emergencies and Preventive, Limiting Measures

For example, slipping, tripping, falling, falling from a height, burns, electric shock, limb injuries/breaks can be among the possible emergencies.

Conducting risk assessment, detailed safety of the work and including appropriate equipment in the construction methods, employing competent personnel, providing the necessary training to the employees, providing the necessary occupational health and safety trainings to the employees, conducting the health surveillance of the employees in the specified time periods, near-miss forms Providing the creation and filling of it, receiving the ideas and suggestions of the employees in terms of occupational health and safety, introducing a reward system on occupational health and safety, ensuring that the floors, roads and stairs comply with the criteria determined in the legislation / standards, thermal comfort conditions comply with the criteria determined in the legislation / standards, Carrying out studies on instilling a safety culture, keeping an up-to-date traffic plan in the workplace, separating vehicle and pedestrian walkways, maintaining and periodically checking the tools and equipment used, Taking personal protection measures completely, preventing dangerous situations and behaviors, using PPE with appropriate features, and the machines and equipment used in compliance with the standards and not being modified, and using them in accordance with the instructions can be counted among the preventive activities. Establishing a first aid team, providing first aid personnel with professional first aid training, providing appropriate personal protective equipment, ensuring the correct use of personal protective equipment by the employees, hanging emergency contact numbers in visible places and registering them on the phones of



the employees, properly parking the vehicles in the workplace parking lot (facing the escape direction)) can be counted among the limiting activities.

17.7.3. Emergency Response Methods

In the event of an occupational accident, the things to be done by those in the region are listed below.

- In case of any occupational accident, if you have received the necessary training in first aid and are certified by the ministry, apply the first aid requirements.
- Call the ambulance unit on 112 as soon as possible and convey your basic observations about the injured (informing the health unit of the accident and providing first aid to the person who had the accident are the main priority).
- Inform the district supervisor and the emergency chief.
- When the response team arrives, assist if necessary.
- Avoid actions that will delay the intervention of the injured person.

The phones of the health centers in the region are posted inside the health unit. (List of emergency phones)

The health personnel is responsible for obtaining the necessary information about the accident and the condition of the injured person and organizing the next actions. The list of persons authorized to use the ambulance vehicle hangs in the health unit. (driver list). Based on the information received from the person who reported the accident, the health personnel immediately goes to the scene by ambulance. If the ambulance cannot reach the scene, the paramedics immediately go to the scene. It can get help from the employees with the guidance of the health personnel. Ambulance; will be parked in the closest and safest way to the scene, and the patient's stretcher will be removed and made ready. Ambulance driver must be trained in emergency response. After the doctor or health personnel evaluates the situation and makes the first intervention, the patient will be placed on the stretcher in the described position and placed in the ambulance with the head forward. In cases where the injured cannot be taken on a stretcher, he is put on the rescue basket appropriately, and the basket is transported to the area where the ambulance is located, with the help of a tower crane. According to the instructions of the workplace doctor or other health personnel, the health unit or the nearest hospital will be visited. The workplace doctor will decide by which vehicle (ambulance or civilian vehicle) the casualty will be sent to the hospital.

Occupational accident report for the injured is sent by the health officer after the patient is referred to the relevant health institution.

The ambulance will park in front of the emergency department of the hospital and its back will face the emergency room, the siren will be turned off, the warning lights will be left on, and the patient will be taken to the emergency room on a stretcher. After the patient is delivered to the emergency room and returned to the workplace health unit, check the first aid materials of the ambulance, if there are any missing materials, complete them.

When the casualty is transferred to the hospital, a company representative will definitely be present.

Ambulance personnel will make the necessary intervention in limb amputation injuries as soon as possible.

17.7.4. What to Do After an Emergency

The crime scene is limited, detailed investigations are carried out without changing the location of any material. Testimony is taken from eyewitnesses as soon as possible. A detailed accident investigation team is formed, necessary meetings are held, an accident report is prepared, and corrective and preventive actions are determined and implemented. ADKM is collected in accidents with loss of life. The head of ADKM ensures that notifications are made to official institutions. If it is necessary to make a statement to the local and national press, it appoints an authorized person and ensures that the necessary explanation is made. 16.6. Applications under the heading Post-Emergency Action Style are done completely.

17.7.5. Post-Emergency Evaluation

After the emergency response, the form in Annex-23 will be filled by the emergency team and negative, delays and or positive observations will be stated in this form. After the incident, the forms will be evaluated by the emergency team chief and corrections will be made in the procedure if necessary.

17.8. Traffic Accidents

17.8.1. Definition of a Traffic Accident

It is an event that results in death, injury and/or damage involving one or more vehicles moving on the construction site roads.

17.8.2. Possible Emergencies and Preventive, Limiting Measures

- * Recruitment and orientation trainings are provided
- * Service drivers have a driver's license
- * Working with experienced drivers
- * Construction site traffic rules are created
- * Service vehicle usage certificates are created and transferred to the personnel.
- * There are traffic warning signs

17.8.3. Emergency Response Methods

In the event of a traffic accident, the things to do in the region are listed below.

- The engine is turned off, the injured first aid personnel exit the cabin.
- The condition of the passengers, if any, is evaluated.
- In case of any traffic accident, if you have received the necessary training in first aid and are certified by the ministry, apply the first aid requirements.
- Those who are seriously injured should not be moved.
- Call the ambulance unit on 112 as soon as possible and convey your basic observations about the injured (informing the health unit of the accident and providing first aid to the person who had the accident are the main priority).

- If contact cannot be made for assistance, stop any vehicles passing by and report the contact numbers of the nearest contact source.
- The emergency chief and district supervisor should be informed about the situation.
- When the response team arrives, assist if necessary.
- Avoid actions that will delay the intervention of the injured person.
- Do not leave the accident site until first aid reaches the accident site. Provide all relevant details when you call for emergency assistance. (accident location, accident occurrence, type of assistance required, telephone number.)

The phones of the health centers in the region are posted inside the health unit. (List of emergency phones)

The health personnel is responsible for obtaining the necessary information about the accident and the condition of the injured person and organizing the next actions. The list of persons authorized to use the ambulance vehicle hangs in the health unit. (driver list). Based on the information received from the person who reported the accident, the health personnel immediately goes to the scene by ambulance. If the ambulance cannot reach the scene, the paramedics immediately go to the scene. It can get help from the employees with the guidance of the health personnel. Ambulance; will be parked in the closest and safest way to the scene, and the patient's stretcher will be removed and made ready. Ambulance driver must be trained in emergency response. After the doctor or health personnel evaluates the situation and makes the first intervention, the patient will be placed on the stretcher in the described position and placed in the ambulance with the head forward. According to the instructions of the workplace doctor or other health personnel, the health unit or the nearest hospital will be visited. The workplace doctor will decide by which vehicle (ambulance or civilian vehicle) the casualty will be sent to the hospital.

Occupational accident report for the injured is sent by the health officer after the patient is referred to the relevant health institution.

The ambulance will park in front of the emergency department of the hospital and its back will face the emergency room, the siren will be turned off, the warning lights will be left on, and the patient will be taken to the emergency room on a stretcher. After the patient is delivered to the emergency room and returned to the workplace health unit, check the first aid materials of the ambulance, if there are any missing materials, complete them.

When the casualty is transferred to the hospital, a company representative will definitely be present.

Ambulance personnel will make the necessary intervention in limb amputation injuries as soon as possible.

If necessary, the municipal fire department will be called.

17.8.4. What to Do After an Emergency

The crime scene is limited, detailed investigations are carried out without changing the location of any material. Testimony is taken from eyewitnesses as soon as possible. A detailed accident investigation team is formed, necessary meetings are held, an accident report is prepared, and corrective and preventive actions are determined and implemented. ADKM is collected in

accidents with loss of life. The head of ADKM ensures that notifications are made to official institutions. If it is necessary to make a statement to the local and national press, it appoints an authorized person and ensures that the necessary explanation is made. 16.6. Applications under the heading Post-Emergency Action Style are done completely.

17.8.5. Post-Emergency Response Evaluation

After the emergency response, the form in Annex-23 will be filled by the emergency team and negative, delays and or positive observations will be stated in this form. After the incident, the forms will be evaluated by the emergency team chief and corrections will be made in the procedure if necessary.

17.9. Combustion and Explosion of Fuel Tanks

17.9.1. Definition of an Explosion

Explosion is the sudden and violent spread of solid, liquid or gaseous explosive materials in the air by creating high heat, light, gas, sound and pressure as a result of ignition with the effect of spark, reaction or shock.

17.9.2. Possible Emergencies and Preventive, Limiting Measures

During flame welding or cutting works to be carried out on or inside fuel tanks without taking any precautions;

- Due to the increase in gas pressure due to overheating of the tank
- Failure to make gas free after the fuel in the fuel tank has been emptied
- Not making the necessary gas measurements before the operation
- Working near the tank when it is full

Failure to take necessary precautions in and around the tank;

- Not grounding the fuel tank
- Failing to perform the periodic checks and maintenance of the tank
- Not taking precautions against static electricity (neutralizers should be placed at the entrance to the tank area)
- Not connecting the grounding clamp to the tanker while the fuel is being transported.
- The tank is not surrounded, smoking and open flames are not prohibited.

Explosions and burns that may occur in their situations are considered among possible emergencies.

Preparation of the Explosion Protection Document and taking precautions, periodic inspections and maintenance of the tank, obtaining work permits for all flame or spark-scattering electric arc welding, oxygen welding, oxygen cutting works or spiral cutting and grinding works to be carried out on or near the fuel tanks. fulfilling the necessary precautions of the permit, determining the appropriate methods and equipment in the pre-work construction method and transferring them to the employees, removing the flammable materials near the fuel tank, prohibiting the approach with cigarettes and open flames, finding the relevant visuals,

determining the employees responsible for the fuel tank and communicating the fuel tank usage instructions. Preventing unauthorized personnel from entering and limiting the area around the tank, grounding the fuel tank, grounding the tanker while refueling, having a neutralizer and ensuring that the employee is neutral at each entrance are among the preventive and restrictive activities.

17.9.3. Emergency Response Methods

First of all, it should be determined whether there is an injured casualty. If there is any injured casualty, ambulance/fire brigade should be called and the regional supervisor and emergency chief should be informed. By assigning a technical team by the section chief, the power is cut off. Environmental safety must be taken by the response team. Unauthorized personnel should be prevented from entering. If the access of the injured victims by the health personnel is not dangerous, they should be intervened and transported by ambulance. If there is a dangerous situation, it is necessary to intervene in coordination with the fire department to reach the injured. The fire brigade should intervene with the appropriate method for the extinguishing process. Cooling should be done after the extinguishing process. If the area is suitable for search and rescue, every place should be checked for casualties.

17.9.4. What to Do After an Emergency

16.6. Applications under the heading Post-Emergency Action Style are done completely.

17.9.5. Post-Emergency Evaluation

After the emergency response, the form in Annex-23 will be filled by the emergency team and negative, delays and or positive observations will be stated in this form. After the incident, the forms will be evaluated by the emergency team chief and corrections will be made in the procedure if necessary.

17.10. Pressure Vessels

17.10.1. Definition of Pressure Vessels

Equipment closed to the atmosphere, which is designed as a sphere, cylindrical or cone, used in the production, transportation or storage of liquids and gases with an internal pressure of 0.5 bar and above is called a pressure vessel.

17.10.2. Possible Emergencies and Preventive, Limiting Measures

Pressure vessels such as compressor air tanks or steam boilers are caused by personnel error, sabotage, periodic inspections and maintenance, end of life etc. may explode for any reason. Explosion of pressure vessels, fire, causing high potential accidents, damage to equipment are among the possible emergencies. Failure to perform pressure tests, thinning of the tank walls and cracks on the walls are the reasons for the explosion of air tanks. Failure of the evacuation systems for the steam boiler, non-operation of the water supply systems, delay in the steaming works, failure of pressure tests, thinning of the walls of the boiler and

cracks in the walls, explosion and fire are possible emergency situations due to the failure of safety valves.

Preventive and limiting measures are as follows:

Storage of Compressed Gas Cylinders

- Gas cylinders should not be stored in places where water or solvent vapors are concentrated and corrosive substances are present.
- The place where the cylinders are stored should always be ventilated.
- Full and empty cylinders should be stored in separate sections to prevent mixing.
- Gas cylinders should not be exposed to open flames and high temperatures (50 degrees).
- Gas cylinders should be secured with chains to prevent them from tipping over, and should be stored upright.
- Direct sun exposure to the cylinder cage should be prevented and grounding should be done.
- Gas cylinders should be transported with specially designed carriers to carry cylinders.
- Gas cylinders must be fitted with a protective cap during transportation or when not in use.
- Combustible materials should not be stacked in or around the cylinder storage area.
- Warning signs should be hung in necessary places and users should be informed.
- Cylinder storage areas should be kept clean and tidy.
- Suitable fire extinguishers should be available for emergency response to fire in the cylinder storage area.
- The general condition of the cylinders and whether there is a gas leak should be checked frequently.
- Cylinders of oxygen or other gases that support combustion, must be stored at least 6 m away from flammable gas cylinders in a way separated from these cylinders by a fireproof wall.

Table 7. Grouping and Storage of Compressed Gases According to Hazardous Characteristics

1. GROUP	2. GROUP	3. GROUP	4. GROUP	5. GROUP	6. GROUP
*Non flammable * non-corrosive *Low toxic burner	* Flammable* Non-corrosive * Less toxic	*Combustible * Corrosive * Toxic	* Toxic and/or Corrosive * Non flammable * Caustic	* Self-igniting (Pyrophoric)	*Very toxic
Argon, Carbondioxide, Helium, Nitrogen, Oxygen	Acetylene Hydrogen, Propane, Butane	Amine mercaptan and Special gas mixtures containing halogenated hydrocarbons	Hydrogen Chloride, Fluorine and fluorides acid gases	Silane	Arsine, Phosphine, Nitrogen Oxides

Table 10 shows the Grouping and Storage of Compressed Gases According to their Hazardous Characteristics.

- Cylinders of groups 1 and 4 should be stored in well-ventilated areas. The air inlet and outlet should be from the bottom and top.
- The electrical installations and devices of the areas where the cylinders included in Group 2 and 3 are stored must be ex-proof.

Gases that can and cannot be stored together according to Table 10

- Group 1 and group 4 can be stored together
- Group 2 and group 3 can be stored together
- Group 5 cannot be stored with any group
- Group 6 cannot be stored with any group
- Group 1 and group 2 cannot be stored together
- Group 3 and group 4 cannot be stored together
- Group 2 and group 4 cannot be stored together.

Things to Do to Prevent Air Tank Explosion

- Air tanks should be subjected to a hydrostatic pressure test with 1.5 times the highest operating pressure once every six months, and test reports should be filed.
- Safety valves should also be tested once every six months, together with the air tank, and test reports should be filed.
- A suitable thickness blast wall should be constructed.
- Necessary reports must be obtained by a Türk-Ak approved organization.

Things to Do to Prevent Steam Boiler Explosion

- Evacuation and unloading systems should be checked periodically every 6 months and records should be kept,
- Boiler operating instructions must be acted upon (Instructions must be in the boiler room and communicated to the employees).
- Boiler feed water valves and pumps (automatic or manual) should be checked periodically and records should be kept.
- When steam boilers are not used once a year or are not used for at least three months and are wanted to be reactivated, they should be subjected to a hydrostatic pressure test with 1.5 times the highest operating pressure, and test reports should be filed.
- Safety valves should also be tested with the boiler at least twice a year, and test reports should be filed.

17.10.3. Emergency Response Methods

First of all, it should be determined whether there is an injured casualty. If there is an injured casualty, the ambulance/fire brigade should be called and the regional supervisor and

emergency chief should be informed. By assigning a technical team by the section chief, the power is cut off. Environmental safety must be taken by the response team. Unauthorized personnel should be prevented from entering. If the access of the injured victims by the health personnel is not dangerous, they should be intervened and transported by ambulance. If there is a dangerous situation, it is necessary to intervene in coordination with the fire department to reach the injured. The fire brigade should intervene with the appropriate method for the extinguishing process. Cooling should be done after the extinguishing process. If the area is suitable for search and rescue, every place should be checked for casualties.

17.10.4. What to Do After an Emergency

16.6. Applications under the heading Post-Emergency Action Style are done completely.

17.10.5. Post-Emergency Evaluation

After the emergency response, the form in Annex-23 will be filled by the emergency team and negative, delays and or positive observations will be stated in this form. After the incident, the forms will be evaluated by the emergency team chief and corrections will be made in the procedure if necessary.

17.11. Electric Shock

17.11.1. Electric Shock Definition

It is defined as a strong jolt, injury or loss of life caused by the employee touching a place where there is electricity.

17.11.2. Possible Emergencies and Preventive, Limiting Measures

Insufficient supervision, poorly maintained equipment, unauthorized personnel intervention, working without LOTO, working without work permit, using equipment without insulation and controls, use of ungrounded equipment, use of defective machinery equipment, cancellation or absence of leakage current relay, arc explosion, liquid contact Injuries, burns, internal bleeding and loss of life as a result of current flow are possible emergencies. Preventive and limiting measures are listed as follows.

- All electrical work must be under constant supervision.
- All electrical equipment should be maintained regularly.
- Color coding should be made up-to-date and recorded when controls are made.
- No intervention should be made on electrical equipment other than the assigned electrician.
- If electricity needs to be supplied to the line or equipment due to work, LOTO application should be done by personnel who have received LOTO training, together with the work permit.
- Equipment that lacks insulation or is damaged should never be used.
- Electrical equipment must be grounded.
- Broken/damaged/missing parts/modified/non-protected equipment should never be used.
- The residual current relay should be on all lines and should be checked at least once a month.

- Never run a cable over a liquid or conductive material.

17.11.3. Emergency Response Methods

First of all, it should be determined whether there is an injured casualty. If there is an injured casualty, an ambulance should be called and the regional supervisor and emergency chief should be informed. By assigning a technical team by the section chief, energy cut-off is provided if necessary. If the energy cannot be cut off, contact of the casualty with an insulating material should be prevented. Environmental safety must be taken by the response team. Unauthorized personnel should be prevented from entering. If the access of the injured victims by the health personnel is not dangerous, they should be intervened and transported by ambulance. If there is a dangerous situation, it should be expected that reaching the injured becomes safe. The injured casualty should be dealt with after it has been confirmed by the emergency chief that it is safe. The injured should be taken to the ambulance by the health personnel in the accident.

- In order to cut the electrical current of the construction site, the relevant authority should be notified.
- If there is a secondary switch in the work area that will cut the electric current, it should be turned off immediately.
- The person who will intervene must first ensure his/her own environment safety.
- The power supply must be isolated.
- The person should be freed from the source of contact by pushing with a dry wooden stick.
- If there is no rod to push, another electrical insulator should be used.
- Do not try to pull the person with bare hands, use gloves that prevent the passage of electric current.
- If the voltage is too high, do not approach before the insulation.
- Check the casualty's vital activities.
- After the casualty and the environment are secured, first aid should be applied by personnel with first aid training. If there is no one with first aid training, no intervention should be made,
- First aid is given by a qualified first aider. (Muscle contraction and cardiac arrest should be treated by a qualified first aider.)
- Emergency aid teams should be called immediately, and entrances and exits to the accident scene should be blocked until the emergency aid teams arrive.
- By placing the casualty in a side-lying position, vomit, if any, will be prevented from blocking the trachea.
- If there is a burn on the casualty, cover it with a clean and dry cloth. Do not apply water or cream.

17.11.4. What to Do After an Emergency

16.6. Applications under the heading Post-Emergency Action Style are done completely.

17.11.5. Post-Emergency Response Evaluation

After the emergency response, the form in Annex-23 will be filled by the emergency team and negative, delays and or positive observations will be stated in this form. After the incident, the forms will be evaluated by the emergency team chief and corrections will be made in the procedure if necessary.

17.12. Transformer Burst

17.12.1. Transformer burst Definition

It is defined as the burning or explosion of the transformer due to malfunctions or systemic problems that may occur as a result of insufficient capacity or neglect of transformers.

17.12.2. Possible Emergencies and Preventive, Limiting Measures

Failure of surge arresters and relays and other protection devices, oil pressure increase as a result of overload, lack of maintenance, fire and explosion in transformers as a result of unauthorized personnel intervention are among the possible emergencies. Transformer elements should be periodically checked by authorized persons every six months, maintained and records should be kept. Access of unauthorized personnel to transformers should be prevented and their doors should be kept locked. Necessary precautions should be taken to avoid overloading. A fire extinguisher of sufficient capacity should be available. In maintenance and repair works, LOTO should be applied by obtaining a work permit.

17.12.3. Emergency Response Methods

First of all, it should be determined whether there is an injured casualty. If there is an injured casualty, an ambulance should be called and the regional supervisor and emergency chief should be informed. By assigning a technical team by the section chief, energy cut-off is provided if necessary. If the energy cannot be cut off, contact of the casualty with an insulating material should be prevented. Environmental safety must be taken by the response team. Unauthorized personnel should be prevented from entering. If the access of the injured victims by the health personnel is not dangerous, they should be intervened and transported by ambulance. If there is a dangerous situation, it should be expected that reaching the injured becomes safe. The injured casualty should be dealt with after it has been confirmed by the emergency chief that it is safe. The injured should be taken to the ambulance by the health personnel in the accident. If a fire has occurred, first of all, the fire department should be called and energy cut should be provided by the section chief. 16.1.3. In case of fire emergency, the methods under the heading Methods of intervention should be applied.

17.12.4. What to Do After an Emergency

16.6. Applications under the heading Post-Emergency Action Style are done completely.

17.12.5. Post-Emergency Response Evaluation

After the emergency response, the form in Annex-23 will be filled by the emergency team and negative, delays and or positive observations will be stated in this form. After the incident, the forms will be evaluated by the emergency team chief and corrections will be made in the procedure if necessary.

17.13. Foodborne Illness

17.13.1. Foodborne Illness Definition and Symptoms

It is the name of the disease caused by microbes, bacteria, parasites, viruses or toxins that affect humans, transmitted by contaminated food or water. Foodborne illness can affect a single person or a group of people who have eaten the same contaminated food. The most common types of bacteria that cause infection are Campylobacter, E. coli and salmonella.

Foodborne illness Symptoms:

The incubation period is different for each foodborne illness cause. In some poisonings, symptoms appear within 30 minutes to an hour, while in most foodborne illnesses, symptoms occur within 12-48 hours. In other species, it takes a few days to a week for symptoms to appear. Foodborne illness usually lasts 1-3 days, but can last up to a week, depending on the type of bacteria, the severity of the infection and your general health. Most people recover completely within a week. The most common symptoms are vomiting, abdominal pain and diarrhea caused by damage to the digestive tract (stomach and intestine). Depending on the cause, symptoms may include fever and chills, bloody stools, dehydration, muscle aches, weakness and fatigue. In rare cases, foodborne illness can be serious enough to damage the nervous system. In extreme cases, it can cause paralysis or even death.

17.13.2. Possible Emergencies and Preventive, Limiting Measures

Controlling the expiry dates of food products, transporting food under hygienic conditions, serving plates, forks, trays, etc. keeping clean, taking samples from the food, washing and cleaning the fruits and vegetables in accordance with hygienic conditions while preparing the meals, applying the "first in, first out" rule in the cafeteria, storing the raw and cooked foods separately according to the classes of the products coming to the cafeteria, storing the meat products in the deep freezer and after defrosting It is not frozen again later, training the personnel serving the food, color coding the knives, providing general hygiene training to all personnel, carrying out porter examinations of the personnel working in the cafeteria, ensuring that they work with the appropriate equipment, serving the food without waiting after cooking, ensuring that the public living areas are clean and hygienic. are among the preventive measures. Having the list of emergency contact numbers hanging in visible places, people serving the food should wear suitable gloves, bonnets, work clothes, etc. are among the activities that limit its use. Emergency Response Methods

If signs of poisoning have occurred;

- First of all, the health team should be informed,
- The emergency chief should be informed,

- In cases where first aid is required, people who have received first aid training should take the necessary actions,
- If necessary, transportation to the AMBULANCE infirmary should be provided.
- The affected person should take a sample from food or drink that may be a source of poisoning and ensure that it is forwarded to the relevant analysis institutions for testing.

17.13.3. What to Do After an Emergency

16.6. Applications under the heading Post-Emergency Action Style are done completely.

In case of food poisoning; Administrative affairs manager, workplace doctor and catering company officials will carry out comprehensive controls in the cafeteria, kitchen and food warehouses and the necessary examinations on the following issues:

- What is the number of people poisoned? What case does it look like clinically? Which foods are suspected for what?
- What are the menus covering the four meals before the start of the case?
- Which of these foods can cause poisoning?
- How many degrees and how long was it kept in the service?
- Are suspicious food and meat products thawed under appropriate conditions?
- Is there an increased amount of questionable food?
- Have any food items been thrown away or seen suspicious recently?
- After the initial review, samples of the past four meals will be sent for laboratory analysis to be analyzed and the results of the analysis will be presented to the Emergency Manager.
- After the poisoning is brought under control, an incident evaluation report will be prepared and the measures to be taken to prevent it from reoccurring will be determined.

17.13.4. Post-Emergency Evaluation

After the emergency response, the form in Annex-23 will be filled by the emergency team and negative, delays and or positive observations will be stated in this form. After the incident, the forms will be evaluated by the emergency team chief and corrections will be made in the procedure if necessary.

17.14. Epidemic Diseases

17.14.1. Epidemic Disease Definition

It is defined as a disease that infects most of the employees in a short time. Epidemics are contagious diseases.

17.14.2. Possible Emergencies and Preventive, Limiting Measures

Due to deficiencies in general hygiene practices, infectious diseases transmitted by digestion especially in summer and respiratory tract in winter are possible emergencies. In the prevention of infectious diseases; to make the environment positive, to dispose of wastes in a healthy way, to disinfect water, to eliminate vectors, to make food safety and personal hygiene a way of life, to arrange camps and living areas with sufficient capacity, to provide adequate training to employees, to determine the amount of water according to the number of employees in the working areas. Adequate number of toilets and toilets are among the preventive and limiting measures.

17.14.3. Emergency Response Methods

If a disease is seen more than once at a certain time and if there is an effect on clustering and employees, the workplace physician is immediately consulted. The first examination is made by the workplace physician and the patients are referred to the hospital. Ambulance and/or light vehicle are used for transfer according to the patient's condition and with the doctor's decision. The emergency coordinator is informed by the workplace physician. If necessary, ADKM convenes. ADKM workplace physician also participates. The Head of ADKM informs the Communicable Diseases Branch Directorate.

17.14.4. What to Do After an Emergency

16.6. Applications under the heading Post-Emergency Action Style are done completely.

17.14.5. Post-Emergency Response Evaluation

After the emergency response, the form in Annex-23 will be filled by the emergency team and negative, delays and or positive observations will be stated in this form. After the incident, the forms will be evaluated by the emergency team chief and corrections will be made in the procedure if necessary.

17.15. Landslide in Excavation

17.15.1. Definition of Landslide Formation in Excavation

It is defined as the movement of the ground towards the excavation area in cases of unexpected/not calculated/technical disruptions in excavation works or due to weather conditions (Photo 15).



Photograph.4. Employees Trapped Under Landslide

17.15.2. Possible Emergencies and Preventive, Limiting Measures

Failure to give or less slope angle, lack of terracing (paling, stepping), lack of supervision, precipitation, failure of shoring on loose ground, equipment damage or employee's being under a dent are possible emergencies.

Determining the ground structure before the work and preparing the construction method accordingly, determining the appropriate slope angle and terracing / buttress / shoring method for all excavations, carrying out the excavation works with the appropriate method, taking the work permit and fulfilling the precautions, carrying out the works with the control and monitoring of the authorized technical team Among the preventive and limiting activities are the determination of the power lines, if any, in the area to be excavated, not working in rainy weather, periodic checks of the machinery and equipment used, and the competence of the personnel performing the work.

17.15.3. Emergency Response Methods

When an emergency occurs, the emergency chief should be notified first. The area should be immediately surrounded by security tape. The emergency coordinator should be informed and all necessary coordination should be done by the coordinator. It should not be entered into the landslide area without environmental safety.

If there is a landslide again, necessary bracing should be done. Unauthorized personnel should never be let in. If intervention is necessary, the ambulance, doctor, fire brigade and emergency team should intervene in a coordinated manner. In order not to panic, the employee should be constantly talked about and told that he will be fine.



Photo. 5. Images During the Intervention

The necessary method for the removal of the employee should be determined. The personnel to be employed in the removal of the employee must be competent and have adequate training. If necessary, external support from units such as Akut, Umke, Firefighting should be obtained by the emergency chief. If it is obligatory to use a construction machine due to the intervention, the work should be carried out by a competent operator with the guidance of only one person. The construction equipment should not exert extra pressure on the soil where the casualty is located.

When the intervention begins, landslides will occur around the casualty. In order to eliminate this, bracing should be done at the determined points. Where the buttress should be made should be done with the guidance of authorized and trained personnel.



Photograph.6. Removing the Victim from the Landslide and Taking it to the Stretcher

When the casualty is taken out, the doctor should check it and take it on a stretcher and put it in the ambulance with the doctor's instructions (Photo 8). Unnecessary crowds of people in the field should be prevented.

Photograph.7. Improper Practice in Survivor Extraction

The injured casualty should never be pulled (Photo 9). All soil on it should be removed and the injured person should be removed by wearing a neck collar and a KED Rescue vest.

17.15.4. What to Do After an Emergency

16.6. Applications under the heading Post-Emergency Action Style are done completely.

17.15.5. Post-Emergency Evaluation

After the emergency response, the form in Annex-23 will be filled by the emergency team and negative, delays and or positive observations will be stated in this form. After the incident, the forms will be evaluated by the emergency team chief and corrections will be made in the procedure if necessary.

17.16. Truck/TIR, Construction Equipment Sinking and Overturning

17.16.1. Possible Emergencies and Preventive, Limiting Measures

Overloading at the construction site, material spillage from the vehicle body, overflow of objects (rebar, wooden material, etc.), incompetence of the driver, inadequacy of the roads for vehicle passage, failure to act in accordance with the weather conditions, tracking by the pointer during the casting and dispatch of the materials sticking to the frame. Potential emergencies occur as a result of sinking and overturning of the construction equipment due to the failure of the operator's field of vision during turns and transitions, not assigning a pointer to places where the operator's field of view is limited, using machines with damaged and missing parts, unsuitable wheels, and not following the load unloading (Photo 19).



Photograph.8. Heavy Machinery Sinking Overturning

17.16.2. Emergency Response Methods

In case of sinking or overturning of a truck, lorry or heavy equipment, an ambulance and/or fire brigade should be called first, if necessary. The foreman responsible for REC construction machinery and the relevant REC HSE Supervisor/emergency chief should be notified. The appropriate method for removing a truck, lorry or construction equipment should be decided jointly with the technical team and the Emergency Coordinator. While determining the method, attention should be paid to the load condition of the truck, the amount of sinking of the work machine or truck, the lorry and its location. If the construction equipment cannot approach due to the location where the truck, lorry, construction equipment sinks or overturns, rescue should be done with a crane of appropriate tonnage. The operators who will make the rescue must be experienced and competent. If the truck continues to lie where it sank, or if it is lying down during rescue, it should support the truck, work machine and lorry from the appropriate point with another work machine without creating any additional danger. It should be checked



continuously while unloading the load from the truck bed or the lorry trailer. The excavator should choose the ground where the work machine is positioned against its own risks of tipping, and pay attention to the height and elevation difference. (Photo 21). During unloading, if the vehicle or the haulage tilted, unloading should be stopped immediately. All unloading must be carried out accompanied by a banksman. If the vehicle is rearing during unloading, panic should not be done and should not be jumped off the vehicle. The load in the vehicle must be unloaded by the appropriate method. After the haulage of the loaded vehicles is filled, correction and compaction should be made with the bucket of the excavator, and the waste hanging from the chassis should be cleared.

If there is no load in the truck, if it is not too sunk, it can be pulled with the help of a construction machine from the part in front of the truck to be towed (Photo 20). Truck should not be towed with a truck. Pulling should not be done with the chain. It should be pulled with a steel rope of suitable capacity.



Photograph.9. Rescue of sunken truck with other construction equipment

If there is not much immersion in the truck, it can be removed by pushing from the steel supported parts at the back of the chassis.



Photograph.10. Unloading a Sunken Truck

If the truck is overloaded, there is a risk of tipping over and the sinking is severe, the first priority should be to unload the cargo inside. If the truck continues to tilt where it sank, or if it is tilting down during rescue, it should support the truck from the appropriate point with another



construction machine without creating any additional danger. If a tire burst occurs, it should be done by a professionally qualified tire worker by taking the necessary safety precautions. While air is being pumped into the tires, air should be pumped with the air pressure cage.

17.16.3. What to Do After an Emergency

16.6. Applications under the heading Post-Emergency Action Style are done completely.

17.16.4. Post-Emergency Evaluation

After the emergency response, the form in Annex-23 will be filled by the emergency team and negative, delays and or positive observations will be stated in this form. After the incident, the forms will be evaluated by the emergency team chief and corrections will be made in the procedure if necessary.

17.17. Crane / HI-UP Overturn

17.17.1. Possible Emergencies and Preventive, Limiting Measures

Overturning may occur as a result of unbalanced loading of the installed crane, distribution of the load in the air, sudden increase in wind speed, unstable load, breakage of the sling, jamming of the load, deactivation or absence of the overload switch. In lifting operations where Crane/Hi-Up must be used, first of all, crane/Hi-Up should be installed on a suitable ground. Crane/Hi-Up with a capacity suitable for the load should be used. There must be a load diagram and an overload switch on the Crane/Hi-Up and it must be in working condition. During the lifting operation, critical lifting plan should be made for the operations specified in the REC HSE Lifting Procedure, work permit should be obtained, and necessary annexes should be prepared completely. Periodic controls of Crane/Hi-Ups must be done, and must be done by an institution approved by Türk-Ak in periods not exceeding 3 months. The operator must have the necessary certification and competency. Unauthorized personnel entry should be prevented by limiting the area around the Crane-Hi-Up scanning area. All lifting equipment and accessories must comply with the work and national/international standards (TSE EN). Controls should be made by competent personnel. Monthly color coding should be done and control forms should be prepared. The equipment to be used before the work should be checked and the damaged and deformed equipment should be taken out of use. In critical lifts, a lift supervisor must be assigned and work must be done under the management of the lift supervisor. Employees should be provided with relevant information/reminder trainings. The slingshot should be done by trained and slinger certified employees. During lifting operations, at least 2 guide ropes of appropriate length should be used.

17.17.2. Emergency Response Methods

In case of crane overturning in the work area, emergency teams will be notified by ambulance (112). The responsible supervisor of the site and the emergency chief will be notified and



information about the location and situation will be given. Reinforcement should be called by the Emergency Chief according to the number of injured people. The emergency zone will be limited.

Emergency teams arriving at the work site will first make an environmental assessment and work will begin after determining that the environment is safe. Employees in the first aid team will be evaluated, the injured/injured employees will be determined and immediately dispatched by ambulance.

Rescue work will be done by using jacks and planks to rescue the employee or employees stuck in any part of the overturned boom or vehicle. In this study, precautions will be taken to prevent the material lifted with a jack from tipping over. It can be used in cranes if available in the region. In case of multi-directional jamming or jamming of more than one employee in interconnected parts, care should be taken not to harm the employees, and help should be sought from authorized institutions or organizations when necessary.

17.17.3. What to Do After an Emergency

16.6. Applications under the heading Post-Emergency Action Style are done completely.

17.17.4. Post-Emergency Evaluation

After the emergency response, the form in Annex-23 will be filled by the emergency team and negative, delays and or positive observations will be stated in this form. After the incident, the forms will be evaluated by the emergency team chief and corrections will be made in the procedure if necessary.

17.18. Concrete Pump Rollover and Concrete Pouring

17.18.1. Pump Rollover

17.18.1.1. Possible Emergencies and Preventive, Limiting Measures

If the pump is installed close to the edge of the slope, its feet are not fully opened, suitable pads are not placed under its feet, the machine is not installed evenly, the ground under the stabilizer foot slips, it tries to pour concrete beyond the machine's reach, and if a suitable ground is not selected, there is a possibility of overturning (Photo 13).





Photograph.11. Pump Rollover

The ground on which the concrete pump is installed must be solid. Pads should be placed under the feet and the machine should be balanced. The work should be done with a work permit, and the measures of the work permit should be fulfilled. Area delimitation should be made and a lookout should be assigned. It should be ensured that the concrete pump is installed at a suitable distance from the area to be poured. During the installation and pouring of the concrete pump, work should be carried out in accordance with the diagram on it. The operator must have a certificate and competency.

17.18.1.2. Emergency Response Methods

In case of a pump rollover in the work area, the emergency chief and the regional supervisor will be notified by ambulance (112). Reinforcement should be requested by calling the Emergency Chief according to the number of injured people.

Emergency teams will evaluate the environment in the accident area and work will begin after determining that the environment is safe. Employees in the first aid team will be evaluated, the injured/injured employees will be evaluated and priority will be determined, and immediate dispatch will be provided by ambulance.

Rescue work will be done by using jacks and planks to rescue the employee or employees stuck in any part of the overturned boom or vehicle. In this study, precautions will be taken to prevent the material lifted with a jack from tipping over. It can be used in cranes if available in the region. In case of multi-directional jamming or in the case of more than one employee jamming in interconnected parts, care should be taken not to harm the employees and help from the fire department should be requested when necessary. If there is a hydraulic leak before the pump is removed, it will be repaired by the service. It will be connected from suitable anchorage points and the hose of the pump will be closed to assist the lifting operation.

17.18.2. Elephant Hose and/or Steel Hose Burst

17.18.2.1. Possible Emergencies and Preventive, Limiting Measures

If the pump jams, the elephant hose or metal pipes may burst. Employees in the area may be injured by the fragments scattered as a result of the explosion, or the fittings may be thrown out as a whole. The worker may fall from the height if the precautions for working at height are not taken as a result of the pressure adjustment of the elephant hose. Before pumping the concrete, the ball should be thrown and it should be ensured that the hose is open. Appropriate standard and feature equipment should be selected. The operator and the employee holding the elephant trunk must be in effective communication. Due to work pressure, concrete pouring should be prevented without taking occupational safety precautions and at an inappropriate speed.

17.18.2.2. Emergency Response Methods

In the event of an elephant hose burst in the work area, the emergency chief and the regional supervisor, the ambulance (112) and the fire brigade will be notified. Depending on the number

of injured people by the Emergency Chief, reinforcements should be requested by calling 112-110.

In case the elephant hose or steel pipes burst and a large piece hits the employee or employees, first aid is given by authorized first aid personnel in the area. After the first evaluation, the employee is taken to the point where the ambulance can take the injured person with a stretcher and/or emergency rescue basket and necessary interventions are made. If there are parts stuck in the body of the injured, these parts are definitely not intervened and the employee is sent to the hospital without losing time.

In cases where there is only concrete material scattering without elephant hose or steel pipe explosion and large pieces of ejection, those working in the area are checked by first aid personnel. Personnel who are found to be inconvenient are intervened. Even if no one was harmed as a result of the explosion, the incident is reported in order to investigate the causes of the incident and take precautions.

According to the concrete spread, it will be cleaned with a backhoe loader and thrown into the required waste area.

17.18.3. Concrete Pouring and Afterwards

17.18.3.1. Possible Emergencies and Preventive, Limiting Measures

Formwork collapse may occur during concrete pouring (Photo 23). During concrete setting, concrete may collapse. In order to avoid these events, the static carrier calculation of the formwork should be done well. Before pouring concrete, a work permit must be obtained, all equipment must be checked, and a report of mold transportation must be approved by the authorized engineer. During the pouring of concrete, the carrier formwork system should be constantly checked. No extra loading or work should be done on it before the setting is complete.



Photograph.12. Concrete Collapse

17.18.3.2. Emergency Response Methods

In case of collapse after concrete pouring in the work area, the emergency chief and regional supervisor, ambulance (112) and fire brigade will be notified. Reinforcement should be

requested by the Emergency Chief according to the number of injured people. Wounded, casualty position (under-over-dent) should be determined. If it is not possible to intervene with the existing team and equipment by the Emergency Chief, professional rescue teams should be called and help should be requested.

If the casualty is conscious and able to speak; It should be kept calm and morale should be constantly given. With the existing and necessary equipment, the area around the casualty should be opened enough for emergency response. All possible checks should be made by the workplace physician. After the approval of the workplace physician, the casualty should be intervened and taken to the ambulance with the appropriate stretcher. The injured person should be referred to the hospital with the decision of the workplace doctor. The perimeter should be surrounded by lanes and all unauthorized personnel should be prevented from entering the accident site. After the accident response method is determined, rescue should be done and the workplace doctor should be checked before being taken to the ambulance. The casualty should be referred directly to the nearest full-fledged hospital.

17.18.4. What to Do After an Emergency

16.6. Applications under the heading Post-Emergency Action Style are done completely.

17.18.5. Post-Emergency Evaluation

After the emergency response, the form in Annex-23 will be filled by the emergency team and negative, delays and or positive observations will be stated in this form. The forms will be evaluated by the emergency team chief after the incident and corrections will be made where necessary in the procedure.

17.19. Working at Height and Rescue

17.19.1. Definition of Working at Height

work performed on ground where there is a high level difference and the possibility of injury resulting from falling may occur; is considered to be work at height.

17.19.2. Possible Emergencies and Preventive, Limiting Measures

There are possible emergencies such as injury, loss of life, material falling, suspension as a result of falling from a height while working at height.

All necessary precautions must be taken for all kinds of accidents and emergencies that may occur. Work permit should be obtained and emergency planning should be made in the continuation and continuity of the work done, in line with the nature of the work in particular. The training of the assigned employees should be renewed completely and at appropriate time intervals. In addition to the occupational, occupational health and safety training of all employees, training should also be provided on the rescue of people suspended at high altitudes or trapped in hard-to-reach places. In order to rescue any personnel suspended at height, personnel with irata (rope access technician) certificate should be available. All equipment that may be needed within the plan should be provided and left to the relevant places within the plan. Their locations should be marked on the plan. Plans should be posted

in relevant places. Alarms, assembly areas and instructions should be taught to employees in training. The trainings should be organized periodically, and especially the operators of tower cranes should be subjected to renewal trainings more frequently as they do high-risk work. The following points specified in the Occupational Health and Safety Regulation in Construction Works are complied with when working at height:

- It will be ensured that assembly and similar works that are not obligatory to be made at height are carried out primarily on the ground as possible.
- Safe access of the employees to their workplaces will be ensured by appropriate vehicles and equipment.
- Safety of the workers in the workplaces will be ensured primarily by collective protection measures such as safe guardrails, anti-fall platforms, barriers, covers, work scaffolds, safety nets or airbags.
- In cases where collective protection measures cannot completely eliminate the risk of falling, cannot be possibly implemented, may pose greater danger, and need to be temporarily removed, connection points or lifelines suitable for the nature of the work will be established and full body belt systems or similar security systems will be used. Suitable connection ropes, hooks, carabiners, pulleys, rings, slings and similar connection devices as well as landing and climbing equipment when necessary, energy absorbing apparatus, rope holders that provide connection to horizontal and vertical lifelines and similar equipment will be provided to the workers in accordance with the work done with these systems and standards.
- The connection points and structural arrangements required for the horizontal and vertical lifelines to be created to be used in the works to be done at height during the construction works and after the construction works are completed and the building is put into use, are determined during the preparation phase of the project and included in the health and safety plan and health and safety file.
- Regular check and maintenance of secure working equipment at height will be ensured. The use of unsuitable equipment is prevented.
- Employees in these areas will be informed about the dangers and risks associated with working at heights, and the necessary training will be provided.
- Work at height is carried out under the supervision and control of a competent person appointed by the Employer or the Site Manager. No work should be done at height without a work permit. Continuous supervision should be provided for work at height.
- The safety nets used; It is ensured that it complies with TS EN 1263-1 and TS EN 1263-2 standards and other relevant national standards in terms of material properties, static and dynamic strength tests, connection and installation conditions, and in the absence of relevant national standards, relevant international standards and suitable for the work done. type of safety net is selected. The user manual of the safety net used in the building area is kept at the workplace. Safety nets are installed in accordance with the standards and user manual.

- Collective protection measures are taken to prevent workers or materials from falling, in gaps that cause discontinuity in floors such as floors of reinforced concrete platforms, elevators, stairs, chimneys, shafts, lighting gaps, windows and similar spaces that create discontinuity between structural elements such as walls and curtain walls, and use of railing systems. on guardrails:
- A main guardrail at least one meter high from the platform and at least 125 kilograms of load-bearing capacity that may come from any direction,
- A heel plate at least 15 centimeters in height, which is adjacent to the platform.
- C) Guardrail spaces, which shall be spaced no more than 47 centimeters between the heel plate and the main guardrail,
- In cases where, for any reason, a part of the safe guardrail at the edge of the reinforced concrete platform needs to be temporarily removed, necessary safety measures are taken in these areas and appropriate personal protective equipment is given to the employees.
- Work platforms and walkways are constructed, sized, used and maintained to protect persons from falling and falling objects.
- Measures are taken to prevent the fall of hand tools and other materials used in work at height.
- Employees are primarily collectively protected against falling objects.
- In the construction site, entrances to areas where objects may fall and pose a danger are prevented or closed passages are made when necessary.
- In the construction site , appropriate head protective equipment is given to the employees and their use is ensured.
- In the construction site, it is ensured that the materials are not thrown directly to the ground, regardless of height, but are lowered in a balanced and safe manner and stacked in a suitable place. Safe working methods such as rubble slides are preferred for the removal of waste materials.

17.19.3. Emergency Response Methods

It is the rescue of the employees who are suspended or in hard-to-reach places during work at height, as soon as possible without being harmed, to save the rescue operation with authorized personnel and appropriate equipment within a plan without causing another accident, and to take the casualty under appropriate and medical attention as soon as possible.

If the person working at height has chosen the work equipment safe and suitable for the job, he/she will perform the self-rescue application;

- Climbing back to the dropped level
- Waiting for the health teams in the area they reach,
- First aid, health assessment
- Fall equipment decommissioning and accident investigation
- Waiting to be rescued by emergency teams using the sling trauma apparatus in cases where he cannot climb back to the level he fell.

- Roof works,
- Construction sites,
- On mobile platforms,
- On the Ladders
- On the Scaffoldings,
- On exterior surfaces,
- At Elevators
- At Tower Cranes
- Rescues are made on high heavy-duty machines or vehicles.

When an emergency is detected, the ambulance/fire brigade and the emergency chief and district supervisor should be called first. Rescue personnel who have received IRATA Training should be provided by the emergency chief to go to the area. Rescue method and equipment suitable for the emergency should be determined and the victim should be intervened immediately.

Rope access technician who will carry out the rescue together with the emergency chief;

It is not possible for the person who had an accident to save himself,

It is not possible for teammates to save the accident personnel,

►The rescue operation will be carried out with the emergency team in the work area or with the support of the professional rescue team by being called from outside, the danger and risks related to the incident area should be determined and the operation method should be immediately put into practice.

►Emergency rescue audible warning should be sounded differently from other warnings (two long horn sounds) and the entire construction site or work area should be informed and the work in the relevant unit should be stopped.

Environmental safety should be taken in the relevant area supervisor directive.

►In case of rescue without the need for equipment, team members must perform the rescue operation together safely.

►Suspended personnel should be lowered by trained personnel with appropriate rescue techniques and equipment.

►Intervention should be made by the waiting health team. The first aid ambulance team should be given information such as how far the accident fell and how long he stayed in which position.

►If the operation is to be carried out with a crane, the crane operator must bring the hook close to the casualty and wait ready for the directives.

►Other employees should gather in the assembly area.

Emergency response to a person who is suspended or needs to be rescued:

►- Body girdle effective pathology, sling syncopal case, prolonged immobile hanging syndrome or simply fainting after descent, possibly causing injuries and even deaths if not addressed immediately. In this situation, the seat belts of the suspended personnel should not be removed immediately.



- ▶ Suspended personnel must be intervened within 7-14 minutes.
- ▶ It is an acute event that develops within 20-30 minutes and can result in death.
- ▶ As the accident is immobile in his position, he has trouble in blood flow. He may experience permanent health problems such as heart attack, blood pressure, cerebral hemorrhage.
- ▶ In the suspended person, blood pools in the veins, especially in the legs, due to inactivity and gravity. Under normal conditions, the blood in the veins is directed towards the heart by the pump effect created by the muscle movements in the region. When the muscles in this area, where the legs are immobile, do not work, blood accumulates in the veins. The accumulation of blood in the veins leads to a decrease in the amount of circulating blood. Because the brain is not fed, there may be confusion or loss of consciousness.
- ▶ As the circulatory disorder progresses, kidney, etc. organs are affected and the result can be fatal. All rescue plans must be suitable for the working area and working conditions. Again, other job plans in the surrounding area should be considered.
- ▶ Work seats and footlopes should be used for work over 30 minutes and the staff should pass on the platform where they can step on and regulate the blood circulation.
- ▶ He suffers from severe psychological depression as a result of accidental falls.
- ▶ Accidental loss of consciousness may occur.
- ▶ The accident is experiencing panic and wants to get rid of it immediately.
- ▶ Accident area should be isolated and unauthorized personnel should be removed.
- ▶ Considering that the suspended personnel hit the physical obstacles in the environment, a neck splint should be worn.

Other employees affected by the accident may overreact with the effect of the event, resulting in low motivation, loss of reputation or wrong and unplanned interventions in confusion lead to other accidents.

17.19.4. Rescue Methods

Rescue Plan content is essential that all information is correct when working at height with work permit. Location, date and time, personnel information that will work, personnel information to be contacted in case of emergency. Response should be expedited with effective communication between suspended personnel, Supervisor and Rescue team in all emergency situations. In the event of a personnel falling from a height, a safety spotter is required for immediate intervention and any personnel within the team who can provide effective communication can perform this task. The teams formed according to the emergency plan will work in coordination with at least 2 rescue personnel who will carry out the operation.

17.19.4.1. Elevating Platform Systems

In cases where trussed / jointmobile platforms or boom lifts are in the field, the following steps are applied to rescue the suspended employee;





Photo 15. Elevated Working Platforms

- The platform is brought to the accident site by the authorized operator and is raised towards the suspended person.
- The right rescue equipment should be selected, produced for this purpose and have national/international certificates (EN 341, EN 1496, NFPA 1983 etc.), the selected equipment should be suitable for ambient conditions (hot surfaces, chemicals, carrying capacity depending on the rescue method, etc.).
- The platform is positioned under the victim, if it is safe, the lanyard connection of the casualty's seat belt is removed from the anchor.
- If rescue is possible with a rising platform, the rescue team members must fasten themselves to suitable and reliable attachment points with double lanyards with parachute type safety belts.
- When leaving the rising platform, the connection points that the personnel can safely tie themselves should be calculated and if necessary, an additional life rope should be taken.
- Considering the carrying capacity of the rising platform, the weight of the accident and other equipment should be calculated and the number of people should be adjusted accordingly.
- When the casualty is reached, it is necessary to have a first aid certified personnel and first aid equipment for the first medical intervention. If possible, ambulance personnel should do the first response.
- Ambulance should be called by the communication team at the beginning of the operation, the emergency coordinator should be informed, the rescued personnel should be brought to the health center in a healthy and urgent time.
- The teams formed according to the emergency plan will work in coordination with at least 2 rescue personnel who will carry out the operation.
- After the emergency response, the form in Annex-23 will be filled by the emergency team and negative, delays and positive observations will be stated in this form. The forms will be evaluated by the emergency team chief after the incident. If necessary, corrections will be made in the procedure.

17.19.4.2. Rescue with Rescue Ladders and Mobile Scaffoldings

In cases where mobile elevated platforms cannot be used, the suspended person is rescued with different ladder types and mobile scaffoldings s in the following steps;

► If the fallen person is suspended in the lifeline, if possible, it is ensured that the rescue team is moved to the area they can reach with a ladder. One-piece ladder, platform ladder can be used. If there is a mobile scaffolding in the work area, it should be evaluated.

► In order to delay the trauma, the appropriate ladder is installed in a way that is safe and standing according to the suspended person. If possible, mobile scaffolding and platform ladder are provided.

► If the employee has a Yo-Yo, the ladder is installed in a way that allows the suspended person to descend. With the Yo-Yo, it is lowered to the ground with the help of a ladder or lowered to the mobile scaffolding platform.

► If the suspended person has loss of consciousness, mobile scaffolding is used instead of stairs. If necessary, the rescue attempt is made by two people.

► First aid is given to the employee for the trauma of being suspended on the mobile scaffold. Shall wait for the Medical teams to arrive..

► It should not be forgotten that nets or airbags should be placed in the intervention area where there is a risk of falling.

► The fall equipment is removed from use and the accident investigation is carried out.



Photo 16. Mobile Scaffolds and Ladders

17.19.4.3. Using Rescue Baskets

There are Emergency Rescue Baskets in the field, which are manufactured against possible injury accidents and are kept in order to transfer or rescue the casualty from hard-to-reach places to a safe area with the help of a tower crane.

A total of 5 rescue baskets are in the reach of tower cranes at the project site and are always kept ready for use. Emergency rescue baskets are not used in manufacturing works. Emergency teams and all field workers must know the location of the rescue baskets correctly.

Emergency rescue baskets will be certified, the connection ears will be compatible with the sling to be removed. If necessary, eyebolt connection lock will be used as connection. The plate showing how many people and Kg the basket can carry at most should be placed in a legible manner. The number of persons exceeding the maximum capacity of the basket should not be boarded.

For the rescue operation, there is 1 emergency rescue basket in the D3 and C1 Block regions, 1 in the B7 Block region and 2 emergency rescue baskets in the B4 Block region. In the assembly area no. 4, there is an emergency rescue basket.

The baskets are at the points that the tower cranes can reach at any time and their places should be within a certain plan. Tower crane operators are notified by radio daily and every time the basket locations change, by authorized slingers and OHS field unit. It should have the equipment and arrangement that will enable it to be picked up by the crane operator as soon as possible.

It should also have lighting equipment marked with reflector tapes, if necessary, for situations where visibility is difficult or at night.

While the basket is in motion, care should be taken to avoid collisions with electrical wires or similar power lines. In addition, measures should be taken against weather conditions such as storm, strong wind, ice, snow, fog.

Mobile cranes are also included in the rescue operation in the blind spots or transportation difficulties of the tower crane operators.

17.19.4.3.1. Rescue of Suspended Employee with Emergency Rescue Basket;

► The area where the incident occurred and the condition of the casualty are reported to the medical teams and the Emergency Team Chief without delay.

► The tower crane, which will reach the nearest emergency rescue basket in the region, is contacted immediately by radio.

► According to the location of the fall, the tower cranes are stopped and the accessibility between the basket-crane is evaluated.

► The rescue operation will be carried out by 2 people. After the rescue team quickly evaluates the safety of the basket, they get on the basket with the parachute type safety belts on them. They form lifelines that will secure themselves and the casualty with a safety rope attached to the tower crane main hook block, free from the basket.

► Adequate length of guide rope will be attached at at least two points to ensure safe control of the open rescue basket in the air.

► The rescue basket, which is lifted by the tower crane, will be guided by the slinger by radio and will reach the suspended person as close as possible from below or from above.

► The door of the emergency rescue basket will be positioned towards the suspended person and the rescue team in the basket will take the person who fell on the lifeline into the

basket. The casualty will be removed from the lifeline to which he is attached and connected to the safety rope attached to the hook block.

► The basket will be safely lowered to the health teams who are ready below and first response will be made.

► The fall equipment is removed from use and the accident investigation is carried out.



Photo 17. Rescue Baskets

17.19.4.3.2. Rescue of Accidental Employee with Emergency Rescue Basket;

► The area where the incident occurred and the condition of the casualty are reported to the medical teams and the Emergency Team Chief without delay.

► The tower crane, which will reach the nearest emergency rescue basket in the region, is contacted immediately by radio.

► With the help of the slinger, the emergency rescue basket is lifted by being connected to the tower crane ropes, and is safely lowered to the victim's close by radio command.

► After the first aid is given to the casualty by the medical teams, the injured person loaded on the back board is put into the emergency rescue basket. The injured is attached to the safety rope attached to the hook block of the tower crane as an additional precaution. The door of the emergency rescue basket is properly closed and locked.

► With the help of the slinger, the tower crane operator is commanded and the emergency rescue basket is safely lifted and lowered to the ready-made ambulance below.

► The door of the emergency rescue basket is opened, and the injured, who is taken out of the basket by the medical teams, is put in the ambulance and taken to the nearest health institution.

17.19.4.4. Recovery in Rope Access System

In cases where the suspended worker cannot be rescued with rescue equipment, rescue basket or articulated platforms, they are rescued by a technician-rescue team trained in rope access. Rope rescue personnel must be competent and trained in Irata.

In such an Emergency, the rescue operation will proceed as follows;

- The area where the incident occurred and the condition of the casualty are reported to the medical teams and the Emergency Team Chief without delay.
- The technician-rescue team trained in rope access will be dispatched to the area with their equipment by the Emergency Team Chief.
- Rescue team reaching the area will evaluate the situation and create anchor points to reach the worker with rope and anchor the rescue equipment from height.
- Rope access technician will start the operation by tying ropes (working rope and safety rope) from 2 anchor points.
- When the employee reaches the suspended area, he will connect the suspended personnel to himself from 2 points. Subsequently, the employee will be freed from the fixed point where he is suspended and take it upon himself.
- Finally, with the help of ID, it will safely lower the employee to the ground and save himself from himself.
- The casualty who is rescued from sling trauma, receives first aid intervention from Medicine teams and put in an ambulance and been taken to the nearest health institution.



Photo 18. Rope Access Rescue

17.19.4.4.1. Recovery from Low Ground or Zones from the Work Area

First of all, measures should be taken to prevent the falls of rescue personnel and other workers. A secondary rescue lifeline should be installed where the casualty fell, At least two strong rescue personnel should be organized to descend, Any waste or loose materials that could cause slipping on the working floor should be removed, or appropriate safety precautions should be taken. Rescued personnel should be given first aid by first aid personnel and should be kept under surveillance until the emergency service arrives.

17.19.4.5. Liberator of the Rescue

The Liberator automatic speed-controlled descent and rescue device is used to rescue workers trapped at high altitudes. It can be used by one or two people. Provides constant descent speed with centrifugal braking system.

In our project, there are 3 rescue liberators in EN 341 and EN 1496 standards. The rescue distance of these liberators is 60 meters and they work with a maximum weight of 140 kg and a minimum of 50 kg. Maximum descent speed 1.5 m/s. is With the rescue arm, it allows the personnel to be rescued to be lowered and lifted up and down. While one end is descending, the other end has the feature of rising and 12 mm static rope (EN 1891 certified) is used.

Liberators are located in easily accessible places and are always ready. Inspections and maintenance are carried out at regular intervals. The rescue distances of the liberators should be chosen in accordance with the height of the work done at height.



Photograph 19. Liberator

Static rope: The tower crane cabin must be 1.5 times the height from the ground, braided and 12 mm thick. In addition, there is a need for a 2nd tower crane height static rope for safety purposes.

Static Rope 12 MM 200 Meters Static Rope Rescue Rope https://kayasafety.com/_safetyTemp/b9ee233f-4fa2-405e-bf59-7bc8e3738191.jpg

Photo 20. Static Rope

Rescue triangle: Triangle-shaped equipment that allows the casualty to be grasped and connected to the system with a carabiner (Photo 21)

A total of 2 pieces must be in CE EN 1498 standards. Specially designed for rescue operations. It is an easy-to-wear piece of equipment that wraps the body under the armpits and legs. It is made of high-strength technical polyester fabric. Rescue triangles are located in easily accessible places and are always ready to use. Inspections and maintenance are carried out at regular intervals.



Photo 21. Rescue Triangle

Perlon belt or sling: It is used to create an anchor point from any horizontal steel member.



Photo 22. Perlon Belt

Fall Arrester: It is the equipment where the lowered operator is connected to the rope for second safety. Allows safe landing at the liberator's download speed. When the Liberator is disabled for any reason, it prevents the person from falling in sudden falls (Photo 23)



Photo 23. Fall Arrester

17.19.4.5.1. Liberator Rescue of Tower Crane Operator;

Teams and Trainings to be Formed

Tower Team: In order to carry out the rescue work, a team of at least 3 (2 main and 1 spare) must be established for each tower crane and this team must have received Basic First Aid, Working at Height Training and Work Area Specific Rescue Training.

Ground Team: In order to meet the unloaded employee, place him on the stretcher, fix him and transport him to the health unit, a team of 5 (4 main and 1 reserve) must be established and this team must have received Basic First Aid and Work Area Specific Rescue Training.

- ▶ The area where the incident occurred and the condition of the casualty are reported to the medical teams and the Emergency Team Chief without delay.
- ▶ The Emergency Team Chief informs the rescue team and instructs the team to quickly take the rescue equipment (liberator, rescue triangle, etc.) from their location and move under the tower crane where the incident occurred.
- ▶ While the ground crew from the rescue team, which is divided into two groups, makes the necessary preparations, the tower team climbs onto the tower crane safely by wearing their safety belts and taking the rescue equipment.
- ▶ One of the rescue team climbing the tower crane performs basic first aid intervention to the tower crane operator, while the other rescue team connects the rescue equipment (liberator) to the appropriate anchor points determined on the tower crane. It connects the liberator to one of these anchorage points and the static rope to the other.
- ▶ After the rescue team securely fastens the liberator, they stabilize the operator and put the rescue triangle on the victim. After the rescue triangle and the liberator connection are made correctly and safely, the operator who is connected from the 3D ring starts the rescue process.
- ▶ By communicating with the ground crew, the operator is left suspended from the crane slowly.
- ▶ One of the tower team members unlocks the liberator to allow free landing. In this way, the operator descends safely at a speed of 1.5 m/s. It is provided to descend to the safe point by directing it from below during descent with the guide rope connected from the D ring.
- ▶ Rescue team and medical teams quickly intervene to the operator who is lowered safely and unlink the rescue equipment.
- ▶ The medical teams make the first aid and put the casualty in the ambulance and they are taken to the nearest health institution.

Matters to be Considered

A guide rope can be attached to the 3-D-ring of the rescue triangle and hung down to guide the operator about landing at the appropriate point. This rope can be used by the ground crew

to get the operator down to the appropriate point. All equipment to be used in rescue are CE certified and must have the relevant EN norms. The maintenance of the equipment to be used in the rescue should be done as specified in the product manuals and as often as possible. The equipment in the bag in the tower crane cabin should be undamaged, organized and in a way that can be easily opened and used in an emergency. Tower crew members must have technical knowledge and skill in the use of working at height and rescue equipment.

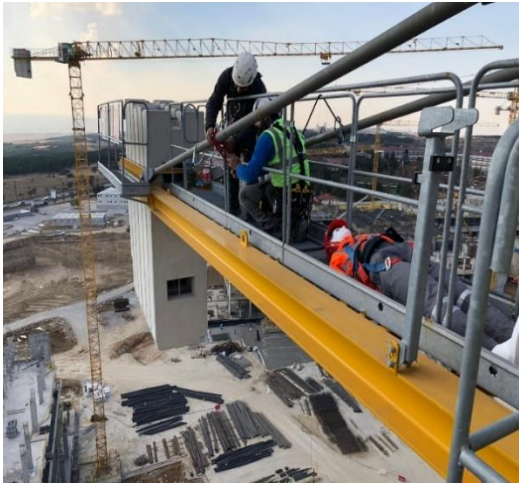


Photo 24. Rescue Team Response to Operator and Liberator Connection

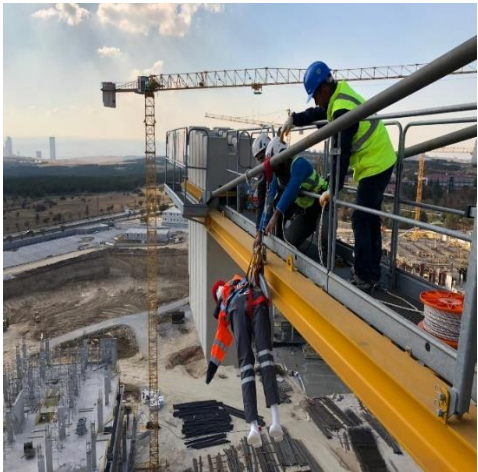


Photo 25 .Leaving the operator hanging down.



Photo 26. Lowering the operator.

17.19.4.6. Rescue a Suspended Person

In such a case, all work in the area should be stopped and the openness and security of access roads should be ensured. The district supervisor and the emergency chief should be informed, the ambulance and fire brigade should be called. The district supervisor should notify the rope access technician. To ensure that the rescuers arrive with the appropriate response equipment, the location and altitude of the personnel should be clearly stated when the rescue team is called. Rescue can be accomplished if personnel can be reached safely using a basket crane. Rescue work is performed by the rope access technician by using rope access techniques at the points where the vehicle cannot reach. If rescue is to be continued with the platform that can be lowered and raised to a point using rope access techniques, the rescue process should be continued after the necessary security measures are provided on the ascending platform. Two ropes are always used for rope access in rescue operations. One of the ropes is always the safety rope. Equipment used in rescue, lifting tools, libarator, ropes, ID, jumar, should be checked at regular intervals and their suitability and usability should be recorded. Lifting equipment should be maintained and recorded every six months, and before each use of ropes and other mechanical systems.

17.19.4.6.1. Recovery Using an Height Recovery Kit

High rescue kit is designed for the quick and safe release of suspended personnel. Rescue reel has suspension system. There is an overspeed brake integrated on the recovery reel. In this way, the reel locks itself in a possible fall. As the rescuer feeds the reel with the rope, the system provides the descent. Thanks to the double-sided locking mechanism of the recovery reel, the system works in both directions up and down. It has mechanical advantage thanks to its 5:1 pulley system.

It has Ø:11mm EN 1891 static rope in the pulley system.

Thanks to the F-2 anchor sling, the system can be easily mounted even on wide profiles. The rescue stanchion is telescopic. In this way, it is easy to reach suspended personnel from a distance.





Photo 27. Rescue kit

The way to be followed in the rescue of the suspended person with the rescue kit;

- ▶ The area where the incident occurred and the condition of the casualty are reported to the medical teams and the Emergency Team Chief without delay.
- ▶ The Emergency Crew Chief instructs the technician trained in rope access to take the rescue kit from its location and go to the area.
- ▶ Reaching the area, the rescue team installs the emergency rescue kit and connects the F-2 anchorage connection to a solid and safe place.
- ▶ With the help of the telescopic rod, the hook of the rescue pulley with the pulley system is inserted into the 3 D-rings of the suspended employee's seat belt.
- ▶ The suspended person's seat belt lifeline connection is canceled and the worker is connected to the rescue kit.
- ▶ The rescuer pulls the rope of the rescue reel and rescues the suspended worker upwards.
- ▶ The medical teams make the first aid and put the casualty in the ambulance and they are taken to the nearest health institution.

17.19.4.7. Emergency Situations That May Occur in the Works Performed on the Basket

Employees working with baskets must work with the baskets attached to the appropriate anchorage point. In addition, manual lowering systems should be available in case the machines holding the basket may break down. Baskets should be visually inspected by a company approved by Türk Ak at 6-month intervals before daily use. As an emergency that may occur, hydraulic discharge is the employee falling out of the basket and being suspended. Area limitation should be made against the risk of material falling in the work area, and a lookout should be assigned.

17.19.4.7.1. Emergency Response Application in Cart Studies

In case of suspension on the crane or material falling into the basket in the work area, emergency teams, Ambulance (0541 373 79 49) should be notified. The district supervisor and the emergency chief should be informed. Under the coordination of the rescue team, the worker will be lowered to the nearest and non-hazardous area by the basket operator, and the ambulance team in the area where the worker was unloaded at that time will evaluate the situation of the worker and intervene. In case the basket does not work, any raised platform should be intervened, and if this is not possible, the injured casualty should be rescued by the rope access technician using appropriate rope access techniques.



17.19.4.8. Working on Mobile and Fixed Scaffolds

In our work area, the use of life rope and safety belt is mandatory for facade and fixed scaffolding works. In case the exterior scaffolding falls over, it is foreseen that the employees will be suspended. Falling may occur as a result of sagging out

17.19.4.8.1. Emergency Response Application

If the employee is suspended in the work area, emergency teams will be notified. The district supervisor and the emergency chief should be informed. A trained rope access technician is directed to the working location. At least 2 lifelines will be created for the employee performing the rescue operation and rope holders will be placed. The rope will reach the worker's suspended area and the worker's lifeline and safety belt will be quickly checked and new lanyards attached to the D-ring will be attached to the working rescue equipment and lowered slowly to the nearest ground with the rescue equipment and rescue personnel. At that time, the ambulance team in the area where the employee was unloaded will evaluate the situation of the employee and intervene.

17.19.4.9. Working on the Roof

17.19.4.9.1. Suspended Employee's Lifeline

In roof works, horizontal and vertical life ropes are pulled before the work starts and the employees work by connecting to these lifelines. In addition, work done on the roof is subject to a work permit. Emergency situations that may occur on the roof may be in the form of the employee falling on the roof edge and hanging on the roof edge.

In addition, since the sheet material used has sharp surfaces, employees should use PPE and gloves that are resistant to cuts. However, the occurrence of deep cuts on various limbs of the employees is considered among the emergencies that may occur.

Intervention Methods in Emergency Situations Occurred in Roofing Works

In the event that the employee is suspended in the work area, the emergency teams and the fire department will be notified. The district supervisor and the emergency chief should be informed. The fire truck in our working area can reach a height of 30m vertically. First of all, the working fire truck should be rescued with the basket of the fire truck in the area that the fire truck can reach. In case of hanging in the area where the fire brigade cannot reach, a trained rope access technician is directed to the working location. At least 2 lifelines will be created for the employee performing the rescue operation and rope holders will be placed. The rope will reach the worker's suspended area and the worker's lifeline and safety belt will be quickly checked and new lanyards attached to the D-ring will be attached to the working rescue equipment and lowered slowly to the nearest ground with the rescue equipment and rescue personnel. At that time, the ambulance team in the area where the employee was unloaded will evaluate the situation of the employee and intervene.

17.19.4.10. Rescue Employee from Freight Elevator



It should be prohibited to use the freight elevator by anyone other than the attendant, and to get on the freight elevator other than the operator. In case the elevator stops suddenly, the elevator should not be abandoned and emergency communication should be provided. When getting on the elevator, wait for the elevator to come to a complete stop. The load must be balanced in the elevator. Loads above the capacity determined by the manufacturer should not be carried in freight elevators. There should be a parachute type safety belt in the elevator cabin to be used in an emergency.

After the operator's illness, for rescue work;

An ambulance should be called and the emergency chief and district supervisor should be called. The emergency coordinator should be informed by the emergency chief, emergency coordination should be ensured, and the rope access technician should be informed. An anchor point should be created from a solid area near the upper floor of the lift space. After anchoring, 2 ropes, one main and one spare, should be created.



Photo 28. Rope access technician gaining access

It opens the top cover of the cabinet and enters the cabinet. It brings the cabin to the nearest lower floor or upper floor.

The patient is taken out of the elevator with a stretcher taken from the nearest emergency point. The removed patient will be transported to the ambulance.

First aid personnel will definitely carry out the process of putting the casualty in the ambulance. In case of malfunction in the freight elevator, the technical service will be notified.

17.19.5. What to Do After an Emergency

16.6. Applications under the heading Post-Emergency Action Style are done completely.

17.19.6. Post-Emergency Response Evaluation

After the emergency response, the form in Annex-23 will be filled by the emergency team and negative, delays and or positive observations will be stated in this form. After the incident, the

forms will be evaluated by the emergency team chief and corrections will be made in the procedure if necessary.

17.20. Night Shift

17.20.1. Night Shift Definition

Night shift is the work that starts at 20:00 at the latest and lasts until 06:00 at the earliest and requires a work permit. It cannot exceed eleven (11) hours. No matter what work is done during night work, all employees who enter the red zone must obtain a work permit.

17.20.2. Things to Do During Emergency Situations That May Occur During Night Shift

In case of emergencies that may occur during night shift, the intervention should be done as soon as possible. For this reason, emergency teams should be formed with their backups for night shift. According to the work done and the emergency situation, the application will be made as specified in this plan. The responsibility for creating the teams will be with the employer employer representative and the technical team.

Lighting in accordance with laws and regulations should be provided in night working areas.

17.20.3. What to Do After an Emergency

16.6. Applications under the heading Post-Emergency Action Style are done completely.

17.20.4. Post-Emergency Response Evaluation

After the emergency response, the form in Annex-23 will be filled by the emergency team and negative, delays and or positive observations will be stated in this form. After the incident, the forms will be evaluated by the emergency team chief and corrections will be made in the procedure if necessary.

17.21. In-Shaft Works

17.21.1. Definition of In-Shaft and Shaft Edge Works

The works made in the spaces and edges created for the passage of the lines of the shaft such as Elevator, electrical, mechanical, waste water etc. in the working area are defined as in-shaft works.

17.21.2. Possible Emergencies and Preventive, Limiting Measures

In the event that work is carried out by eliminating collective protection measures in our work area, life ropes in accordance with the standards should be pulled in the work area. Employees are required to work by connecting to lifelines created with lanyards with parachute type seat belts and double leg hooks (5.5 inches). In this case, the emergency situation that may occur is that the employee falls from the floor edge and hangs. Obtaining work permits, applying collective protection methods, establishing a lifeline, using safety belts, prohibiting work in the projection and limiting the area, providing training to employees, and conducting exercises are among the preventive and limiting measures.



17.21.3. Emergency Response Methods

If the employee is suspended in the work area, emergency teams will be notified. The district supervisor and the emergency chief should be informed. The nearest tower crane should be kept ready in the incident area. The priority is to save the employee with the emergency basket. In the area where rescue with a basket cannot be made, a rope access technician trained in rope access to the working location is directed. At least 2 lifelines will be created for the employee performing the rescue operation and rope holders will be placed. The rope will reach the worker's suspended area and the worker's lifeline and safety belt will be quickly checked and new lanyards attached to the D-ring will be attached to the working rescue equipment and lowered slowly to the nearest ground with the rescue equipment and rescue personnel. At that time, the ambulance team in the area where the employee was unloaded will evaluate the situation of the employee and intervene.

17.21.4. What to Do After an Emergency

16.6. Applications under the heading Post-Emergency Action Style are done completely.

17.21.5. Post-Emergency Evaluation

After the emergency response, the form in Annex-23 will be filled by the emergency team and negative, delays and or positive observations will be stated in this form. After the incident, the forms will be evaluated by the emergency team chief and corrections will be made in the procedure if necessary.

17.22. Confined Space

17.22.1. CONfined Space Definition

It is defined as special working areas where the working personnel cannot reach or pass easily, cannot ascend or descend, and there are deaths or injuries due to the presence of harmful substances in the environment. Areas that are not designed for continuous operation and whose entrances and exits are restricted are considered confined spaces.



Sewer



Pits



Storage Tanks



Rogar



Tüneller



Havalandırmalar

Manhole	Tunnels	Ventilation
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Photograph 29. Confined Space

17.22.2. Possible Emergencies and Preventive, Limiting Measures

Confined space environments; consists of potentially dangerous or harmful levels of gas, dust, vapor or smoke. Poisoning, fainting, falling, loss of consciousness, jamming, injury and loss of life are among the possible emergencies of the employees in the works carried out in Confined spaces.

Personnel who will do Confined space work;

- Must have a work permit.
- There must be a watcher
- A work permit must be obtained.
- Preliminary evaluation should be made.
- Safe transportation and return should be planned.
- The equipment to be used must be ready.
- The course of action must be determined.
- They must have knowledge of the emergency plan.
- Measurements should be made before entering the confined space.
- The entry and exit times of the employees must be recorded.
- Area limitation should be made in the closed area working area.

17.22.3. Emergency Response Methods

Since it is dangerous for human life, the following points should be paid attention to in case of oxygen deficiency and accumulated toxic gas in such places:

During an emergency in a confined space, an ambulance should be called first and the emergency coordinator/supervisor/regional supervisor should be informed. The relevant unit should be directed by the emergency coordinator/supervisor. The response team should first measure the confined space. According to the measurement results, it should enter the confined space, if it can, with the appropriate equipment. If there is dangerous gas, ventilation and gas evacuation should be done first. If there is an immediate intervention, an air-independent breathing system should be used. If the entrance to the confined space is not safe, it should not be entered. It should not be intervened alone. A team must wait outside the confined space. There should be constant communication between the rescue personnel and the outside team. If an outside team is to be called, it should be called by the emergency coordinator/supervisor. Should not be entered with flammable materials such as Cigarettes, matches, lighters, gas lamps, etc. When the trapped person is reached, his breathing should be checked first, and artificial (artificial) respiration should be given if necessary. If there is no danger of explosion and if the environment with toxic gas covers a small area, such as a

garage, etc. the rescuer should hold his breath for a while and pull the person out. During the removal of the casualty from the accident environment, the easiest and harmless way should be tried first. The tripod system can be used for rescue in confined spaces.

Using a Tripod

- It is used in work and rescue works to be done in wells, manholes and closed areas. It provides easy installation with 3-legged aluminum legs, and safer working with foot fixings.
- It is the most practical anchor system in confined space rescues.



Photo 30. Using a Tripod

17.22.4. What to Do After an Emergency

16.6. Applications under the heading Post-Emergency Action Style are done completely.

17.22.5. Post-Emergency Response Evaluation

After the emergency response, the form in Annex-23 will be filled by the emergency team and negative, delays and or positive observations will be stated in this form. After the incident, the forms will be evaluated by the emergency team chief and corrections will be made in the procedure if necessary.

17.23. Water Tank Confined Space Recovery

17.23.1. Possible Emergencies and Preventive, Limiting Measures

Confined space environments; consists of potentially dangerous or harmful levels of gas, dust, vapor or smoke. Poisoning, fainting, falling, loss of consciousness, jamming, injury and loss of life are among the possible emergencies of the employees in the works carried out in Confined spaces.

Personnel who will do Confined space work;

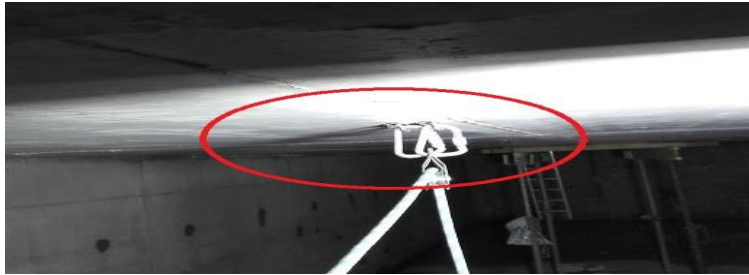
- Must have a work permit.
- There must be a watcher
- A work permit must be obtained.
- Preliminary evaluation should be made.
- Safe transportation and return should be planned.
- The equipment to be used must be ready.
- The course of action must be determined.
- They must have knowledge of the emergency plan.
- Measurements should be made before entering the confined space.
- The entry and exit times of the employees must be recorded.
- Area limitation should be made in the closed area working area.

Before working, confined space work permits will be signed by the trained officials, notified to the employees and signed.

The confined space work hazard analysis will be signed by all employees signing the work permit.

There will be 2 dowels with a capacity of 25 kn for hanging and removing the stretcher at the entrance of the water overflow window.

The installed bolts be in a position where the stretcher can come out at the manhole entrance. 25 kn capacity lugs will be attached to the anchor points. It will be attached to the spool end.



Photograph 31. Water tank inlet Two pegs, lugs and carabiners with 25kn capacity

Before the work is done, there will definitely be a suitable type of stretcher in the water tank.

The ropes to be pulled up on the stretcher will be tied.

The scaffolding railing will be removed to allow the stretcher to pass. A hammer will be kept in the area at all times.

The personnel who will make the rescue must have rehearsed the rescue at least once beforehand.

In case of shortage of rescue personnel, they can assist with other experienced rescue personnel directive.

17.23.2. Emergency Response Methods

The regional emergency coordinator and the emergency chief are informed by the observer.

The supervisor immediately notifies the personnel who will carry out the rescue.
The first aid and two personnel of the rescue team will enter through the water overflow hole.
These personnel will perform the intervention to the injured casualty.
These personnel will do the binding to the stretcher. The victim will be safely taken and tied to the appropriate type of stretcher.



Photo 32. Rescue Stretcher

In the meantime, static rope will be passed from the above anchor points and suspended from the reel. The personnel who will pull the stretcher up will definitely be assisted by the following two personnel.



Photo 33. Removing the Rescue Stretcher from the Overflow Hole

The stretcher coming from the water overflow window will be pulled by two people. The rope of the stretcher that is pulled up will never be released. The rope of the stretcher will be held by a belayer.

While the stretcher is being taken from the water overflow window, the rescuer on the pier will coordinate the rope stretcher and stretcher pulling.

The stretcher will be placed on the scaffolding above. The stretcher will be lowered manually from the area where the railing has been removed.

The stretcher that has been lowered will be carried to the ambulance by four people.

Ambulance personnel will definitely carry out the process of putting the casualty in the ambulance.

17.23.3. What to Do After an Emergency

16.6. Applications under the heading Post-Emergency Action Style are done completely.

17.23.4. Post-Emergency Response Evaluation

After the emergency response, the form in Annex-23 will be filled by the emergency team and negative, delays and or positive observations will be stated in this form. After the incident, the forms will be evaluated by the emergency team chief and corrections will be made in the procedure if necessary.

17.24. Fight

17.24.1. Possible Emergencies and Preventive, Limiting Measures

Collective demonstrations, fights between groups, fights after an accident or fights that may occur between individuals are emergencies that may occur.

Alcoholic entrances are prevented at the construction site in order to prevent a fight. It is strictly forbidden to start a fight within the boundaries of the Kale Construction Site. Employees involved in the fight are terminated. As a restrictive measure, employees are informed about this and relevant instructions are communicated. The entry of sharp-drilling-harming tools into the camp area is prevented.

17.24.2. Emergency Response Methods

In the event of a fight that may occur in the camp area or on the field, the security intervenes with the knowledge and coordination of the security chief. After the necessary intervention by the security supervisor, the construction site management is also informed. If the site management deems it necessary, it notifies the nearest police or gendarmerie unit. If necessary, an ambulance is called. Employment contracts of the employees involved in the fight are terminated.

17.24.3. What to Do After an Emergency

16.6. Applications under the heading Post-Emergency Action Style are done completely.

17.24.4. Post-Emergency Evaluation

After the emergency response, the form in Annex-23 will be filled by the emergency team and negative, delays and or positive observations will be stated in this form. After the incident, the forms will be evaluated by the emergency team chief and corrections will be made in the procedure if necessary.

17.25. Things to Do in War

War is an event that will require the entire country to take emergency measures. In case of war, the continuation of the activities of our construction site depends on the decisions to be taken by the local administrations and the company's senior management. Because our company may be assigned tasks during the war, depending on the characteristics of our processes.

The main dangers that may arise in the event of war are as follows;

- Bombardment
- Chemical fallout,
- Radioactive Fallout

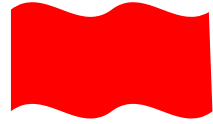
In the event of danger, the sirens expressing these dangers were detected by the civil defense directorates. The signs that should be hung in the form of signboards in various parts of the field are given below.



Yellow Warning: Straight siren sound lasting three minutes. It means there is a possibility of attack.

If you are outdoors: To hide immediately, go to the nearest shelters, general shelters, or places of refuge such as basements.

If you are in the field; Immediately turn off the machine you are working with, turn off the electrical switch and natural gas valves and go to the nearest shelters, general shelters or places suitable for shelter such as basements to hide immediately.



Red warning: The sound of the siren rising and falling for three minutes. It means there is a danger of attack.

If you are outdoors: Hide in the nearest shelters, under bridges, pits, etc., cover the open parts of your body and wait for the danger to pass.

If you are in the field: Immediately turn off the machine you are working with, turn off the electrical switch and natural gas valves and go to the nearest shelters, general shelters or places suitable for shelter such as basements to hide immediately.

Black Warning: Intermittent siren or radio-TV. announced by publication. There is a danger of radioactive fallout or chemical attack.

If you are outdoors; Go to the nearest shelters and cover any exposed parts of your body.

If you are in the field: Immediately turn off the machine you are working on, turn off the electrical switch and natural gas valves and go to the nearest shelters, general shelters or places suitable for shelter such as basements to hide immediately.

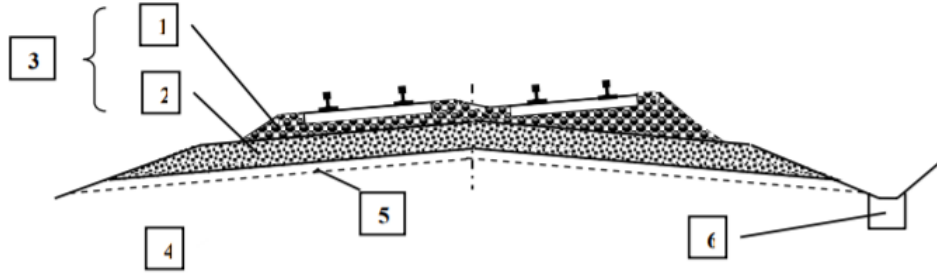
White Warning: The danger is over. Reported via Radio, television, megaphone, etc. Once you get this sign, you can leave the shelters.

17.26. Working on the Railway Line

17.26.1. Railway definition:

The railway is not only composed of road elements such as rails and sleepers, but is a whole consisting of all facilities that assist the transportation work such as station facilities, cars, safety and signaling facilities.

Railway structure, consists of roadbed and infrastructure, a general classical railway line, the "road frame" formed by the rails and sleepers, with the ballast laid under this frame, the crushed stone layers called under ballast and the different ground layers called "infrastructure" or the bridge under them, viaduct, tunnel etc. The road frame and ballast layers are also called "superstructure".



1	BALAST (Ballast)	4	ALTYAPI (Subgrade)
2	BALAST ALTI (Blanket) TABAKASI	5	HAZIRLANMIŞ (Prepared) ALTYAPI
3	TOPRAK İŞLERİ (Earthworks)	6	BOYUNA DRENLER

17.26.2. Possible Emergencies and Preventive, Limiting Measures

17.26.2.1 Accidents of Persons Due to Moving Railway Vehicle

- One or more people being struck by a rail vehicle, its attachments and objects in the vehicles, people falling from railroad vehicles, or an object hitting a person on the railroad vehicle.
- Accidents that occur while getting on and off trains, accidents caused by loose objects in the railway vehicle or falling into the vehicle, hitting people using the crossing between platforms, falling from a train standing on a level crossing, trains standing outside the platform or doors opening to the wrong side. is within this scope.

17.26.2.2 Fire in railway vehicles

- These are fires and explosions that occur in railway vehicles and their loads during cruising, stopping, waiting and maneuvering. What to do in case of fire;
- In case of fire in trains; Except for the tunnel, bridge and viaduct, the train is stopped immediately. The passengers on the train are taken off the train and removed from the fire place, and the fire is intervened with the extinguishers on the train. The incident is immediately reported to the traffic control center and the fire emergency call line.
- If the fire cannot be extinguished during the first response, the train is pulled to the point where it can approach the railway in a way that allows the fire trucks coming from the highway to intervene. Those who can leave the wagons or sets in front and behind are secured by separating from the burning section.

- In order to pick up the passengers at the scene, the nearest train line or sets, if this is not possible, road vehicles are sent to the scene and passenger transfer plans are applied. Measures in the article regarding stopping and protecting traffic at the scene (transfer of passengers) are applied.
- The fire place is secured.
- The sections (compartment, passenger wagons) damaged by the fire in the passenger transport railway vehicles are closed to the public transport service.
- When railway vehicles need to be transferred to a parking area as a result of major fire damage, the Emergency Responsible takes the decision in agreement with the Vehicle Maintenance Service and TCDD Emergency Action Manager. The transfer of railway vehicles to the nearest parking area can be carried out without requiring special precautions. However, working doors and windows must be closed.

17.26.2.3 Both types of ground crossing accidents

Accidents involving objects dropped or dropped into gauge on a level crossing by a level crossing user vehicle, cyclist, pedestrian or level crossing user, including a railway vehicle on a level crossing. In level crossing accidents, the railway vehicle involved in the accident is not required to be a train.

17.26.2.4 Train derailment

- Any situation where at least one wheel of a train leaves the track. It is included in the stream that the wheel returns to the rail by itself after the derailment.

17.26.2.5 Collision

The collision of a train with a rail vehicle, including collision with an obstacle within gauge, means a head-on, rear or side collision of part of the train with another train, part of the rail vehicle, shunting vehicle.

Collision types:

- Collision of train with a railroad car
- Collision with an obstacle in the gauge

17.27. Electrification

EN 50122 Railway Applications-Electrical Safety and Protective Measures for Grounding.

17.28. As the loads and speeds increase in transportation structures, the following measures should be taken in the infrastructure and superstructure:

The physical and mechanical properties of the soil should be adequately described, taking into account possible deformation and fracture mechanisms.



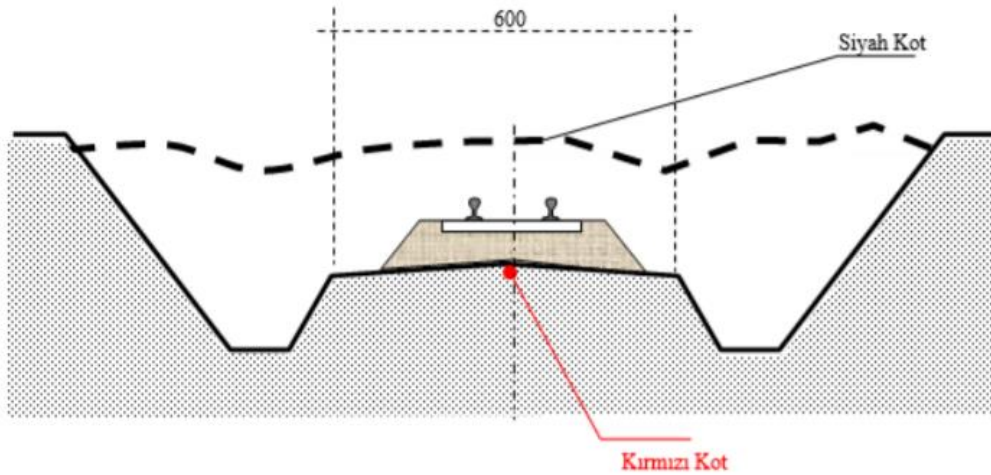
Projecting and calculation principles should be improved by detecting allowable deformation, stress and vibrations, especially in projecting at high speeds and problematic infrastructures (eg soft soils).

Reliable surveillance and monitoring methods should be determined for the assessment of crossing places and existing facilities.

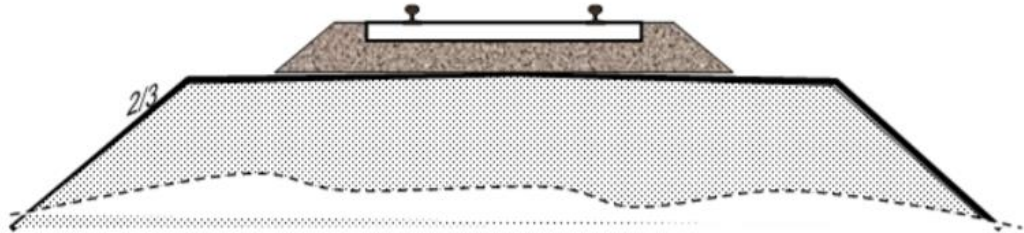
Natural disaster probabilities and risks in the area to be crossed should be predicted and determined.

17.29. Elements That Make Up Infrastructure 1. Splits 2. Fillings

17.29.1. Splitting:



17.29.2. Backfilling:



Fortification Structures and Retaining Walls These are the structures and walls that are built in order to perform their duties and protect them due to reasons such as the fact that the above-mentioned infrastructure is not strong in the places where the above-mentioned



infrastructure is built, and that in some places it is under the influence of external factors such as underground and surface waters and snow.

Shoring: System used to hold and support excavation faces and thus prevent landslides. In addition, it is necessary to determine the type of soil in order to determine the shoring system to be used in the excavation work, taking into account the criteria specified in the standard, and to use the tables in the standard.

Curtain: A section of shoring in contact with the ground and supported by connecting and reinforcing beams or breast beams to hold excavation faces.

17.30. Post-Emergency Evaluation

After the emergency response, the form in Annex-23 will be filled by the emergency team and negative, delays and or positive observations will be stated in this form. After the incident, the forms will be evaluated by the emergency team chief and corrections will be made in the procedure if necessary.





Photo 34 : Catenary line

- If the vehicles passing through the crossings stay in the gate, motion-sensitive sensors should be placed to detect that they are there, and a system should be established that will instantly transmit information to the Control Centers from these sensors.
- While granting work permits to third parties working alongside the railway for any reason, trained security personnel should be provided to ensure the safety of trains.
- When the passages are not closed for any reason, there should be a system to warn the train at the braking distance. In addition, there should be an EMERGENCY WARNING BUTTON and telephone numbers of the relevant places to warn the connected control center in such cases.
- The sight distance of the barrier crossings from both sides of the trains should be at least 1050 meters.
- The safety of the line should be ensured by the presence of a safety watchdog, safety manager and accompanying officers.
- In accordance with the general order of the employees TCDD 551, it should be ensured that the docking distances are applied to the line.
- For the works to be carried out on the catenary lines, the necessary permit procedures should be obtained and the works should be carried out. (General order TCDD 551)
- Employees will gather in the safe area when the train arrives. The Security Officer will make sure that all employees are in the safe zone.
- The information and instructions from the Accompanying Officer regarding train crossings will be acted upon.
- Safety distances should be considered in case of sagging and ruptures in the catenary line.
- In the works carried out close to the catenary line, the necessary maintenance supervisor should be informed at distances below 2 meters and even necessary safety measures should be taken.
- 16.6. Applications under the heading Post-Emergency Action Style are done completely.



In case of an accident that may occur on the line, the emergency chief and regional supervisor will be notified by ambulance (112). Reinforcement should be requested by calling the Emergency Chief according to the number of injured people.

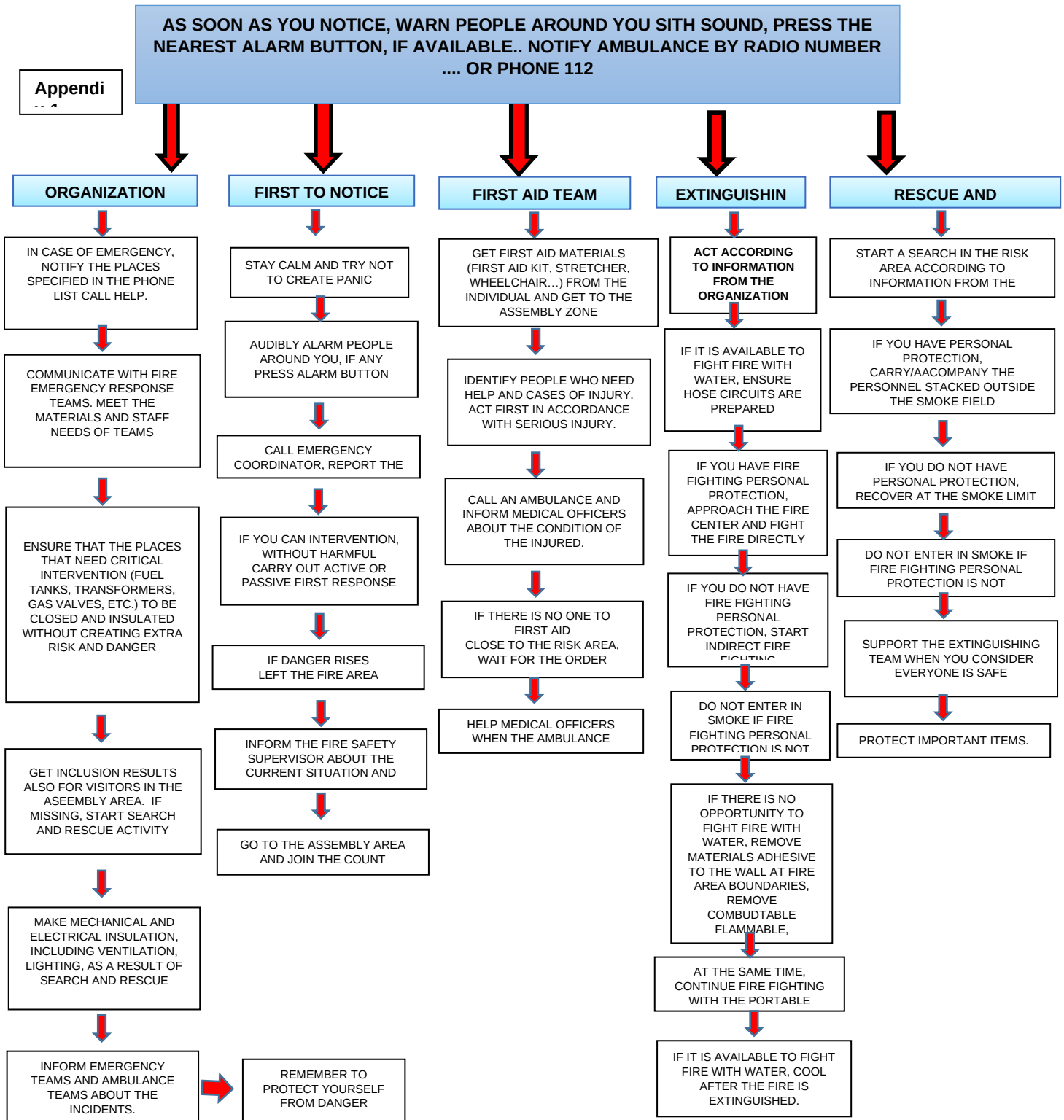
Emergency teams will evaluate the environment in the accident area and work will begin after determining that the environment is safe. Employees in the first aid team will be evaluated, the injured/injured employees will be evaluated and priority will be determined, and immediate dispatch will be provided by ambulance.

18. MONITORING, ASSURANCE AND VERIFICATION

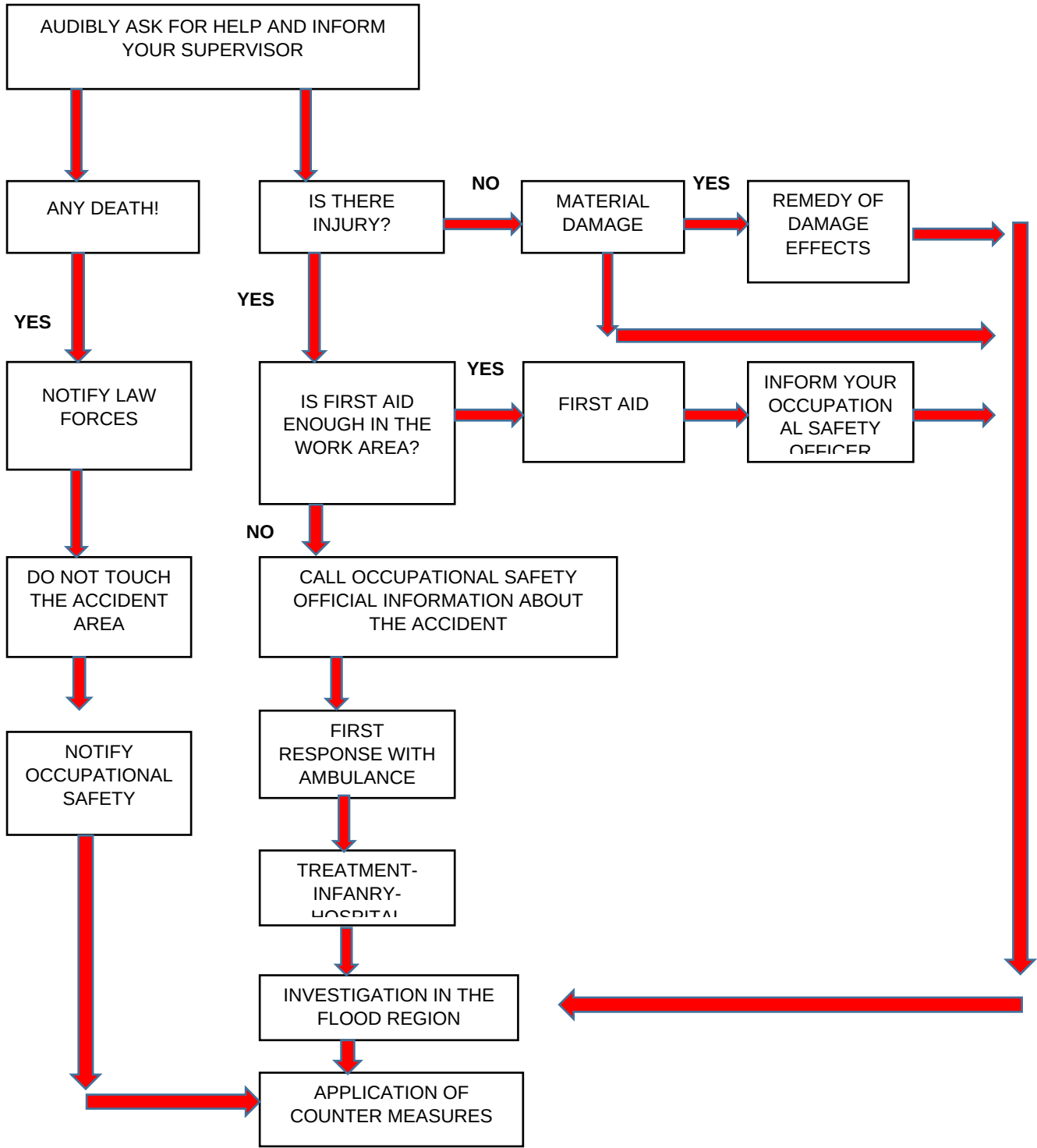
Key success indicators (KPIs) of this procedure will be monitored, verified and evaluated by the relevant parties in accordance with their responsibilities set forth in the E&S Governance document, within the scope of the MAOG-RECU-GB-GNL-IS-PRG-0007-0 HSE Monitoring, Assurance and Verification Procedure.



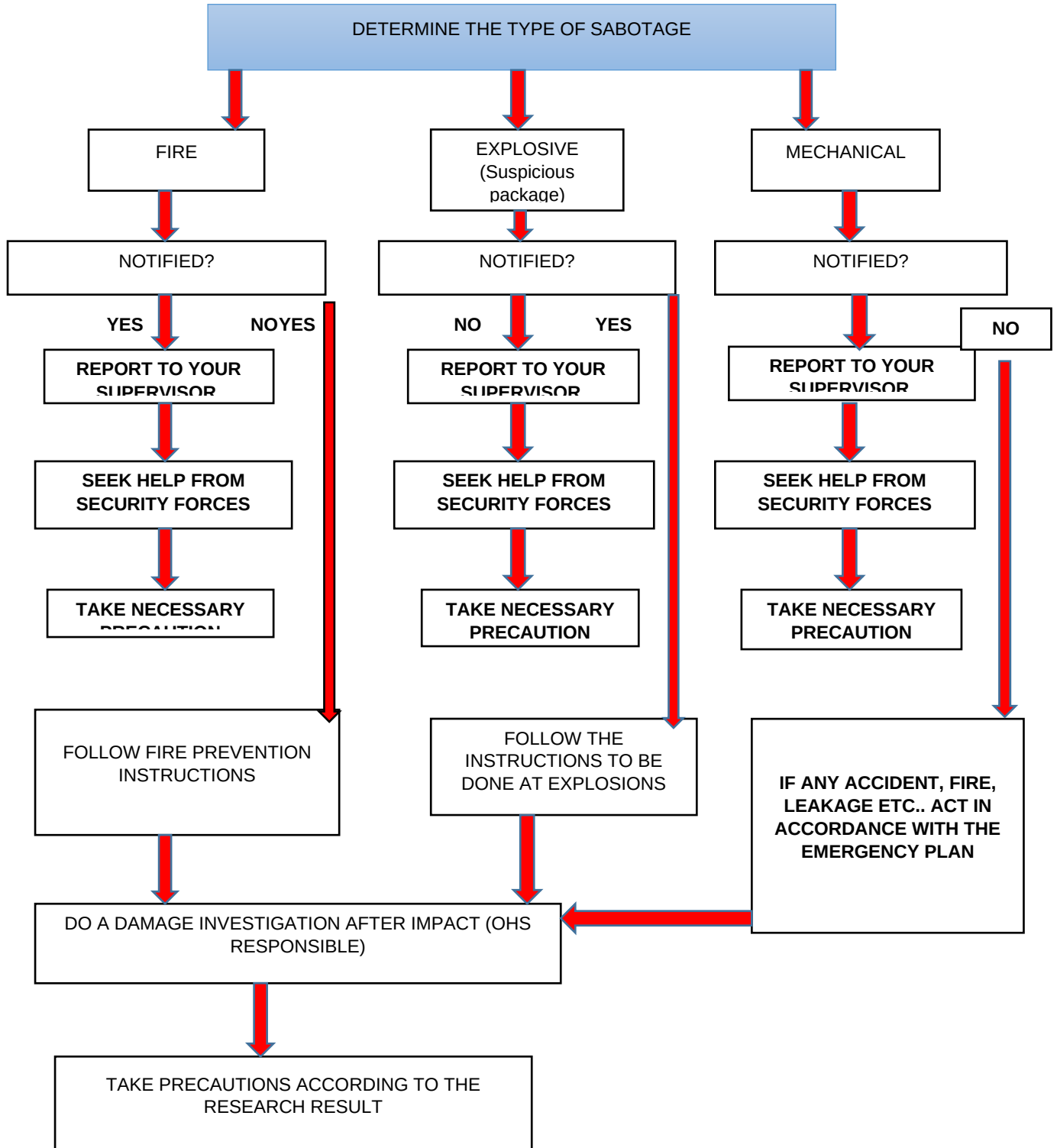
19. APPENDICES



FLOOD EMERGENCY PLAN

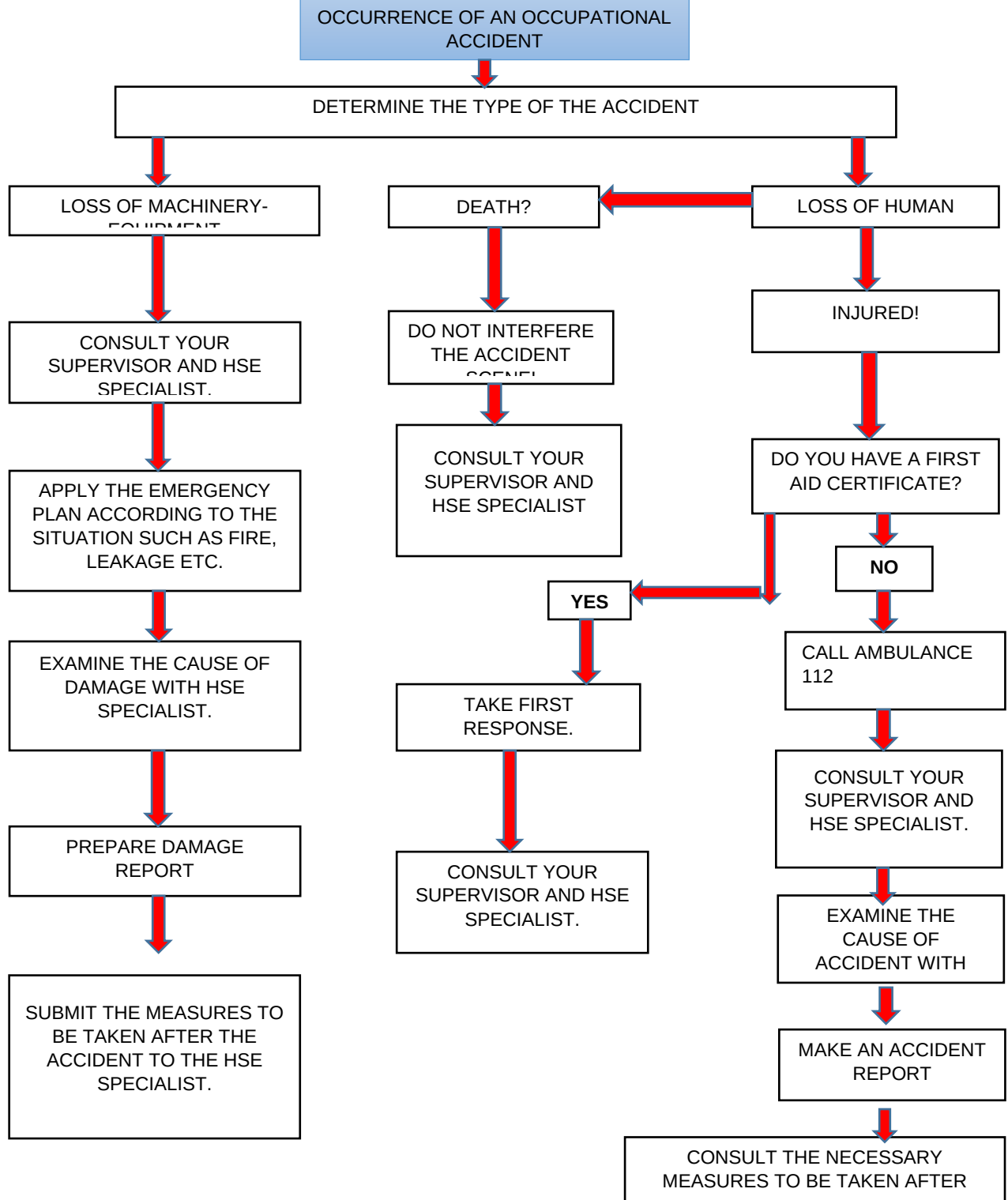


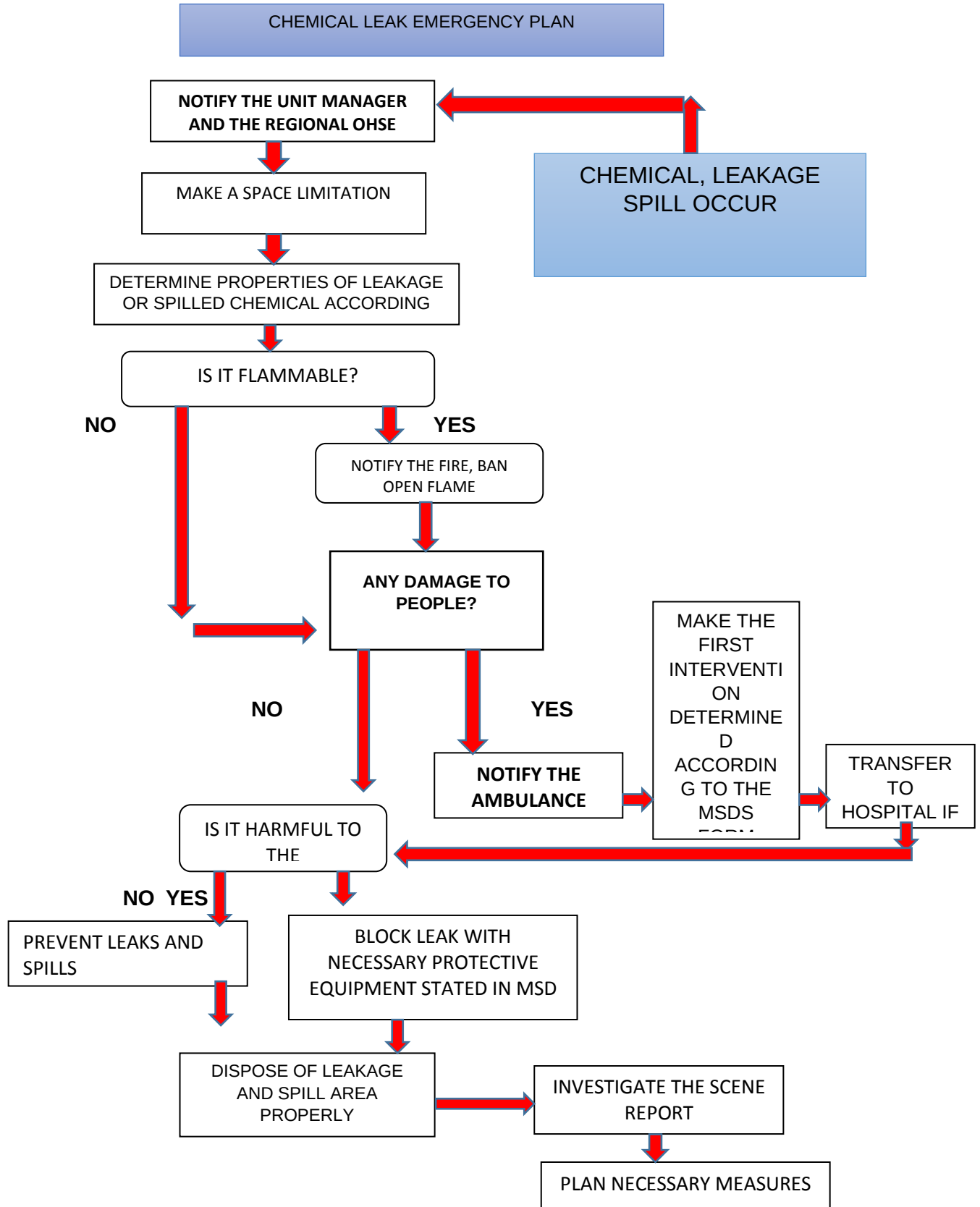
SABOTAGE EMERGENCY PLAN



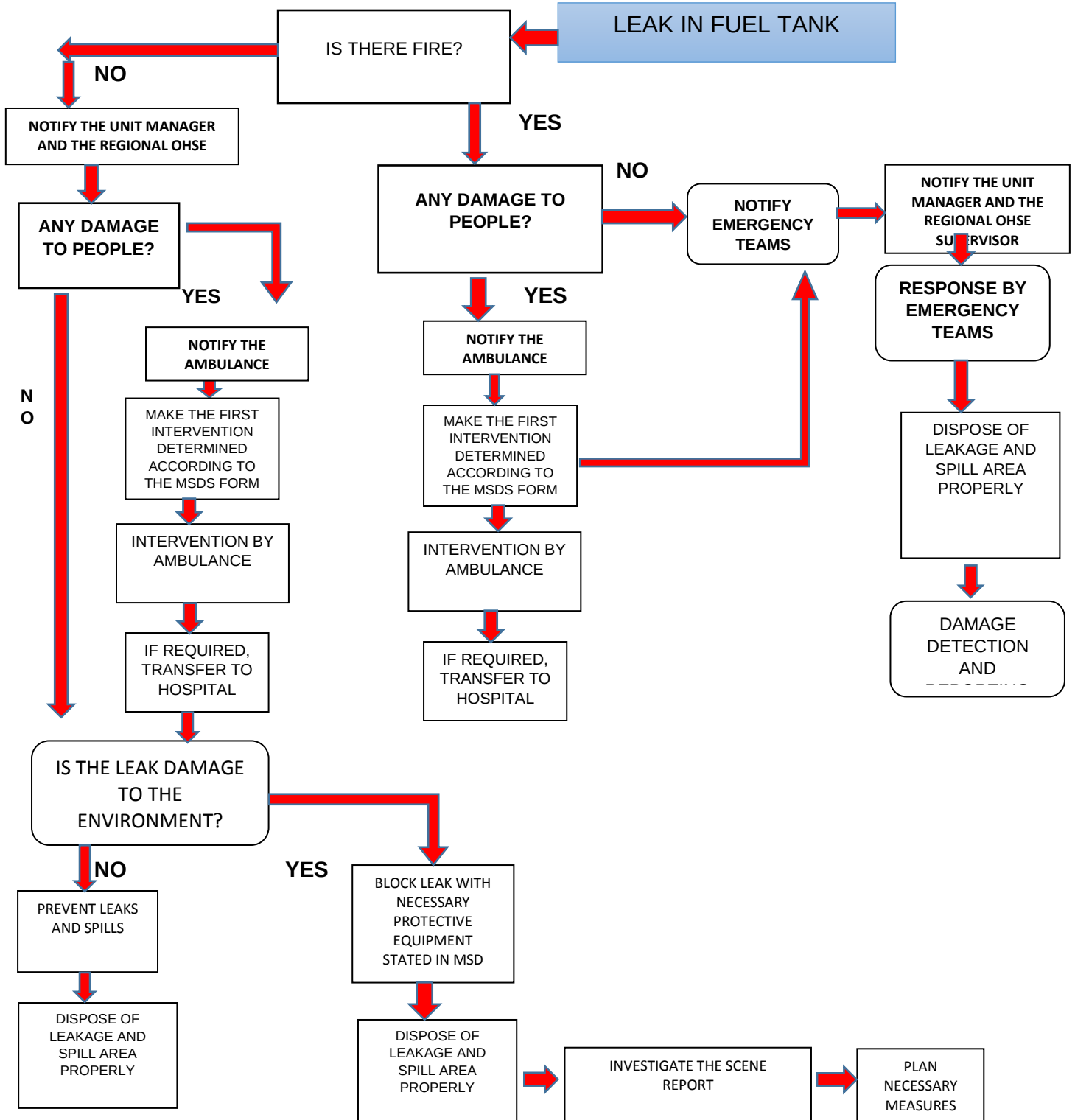


OCCUPATIONAL ACCIDENT EMERGENCY IMPLEMENTATION
PLAN

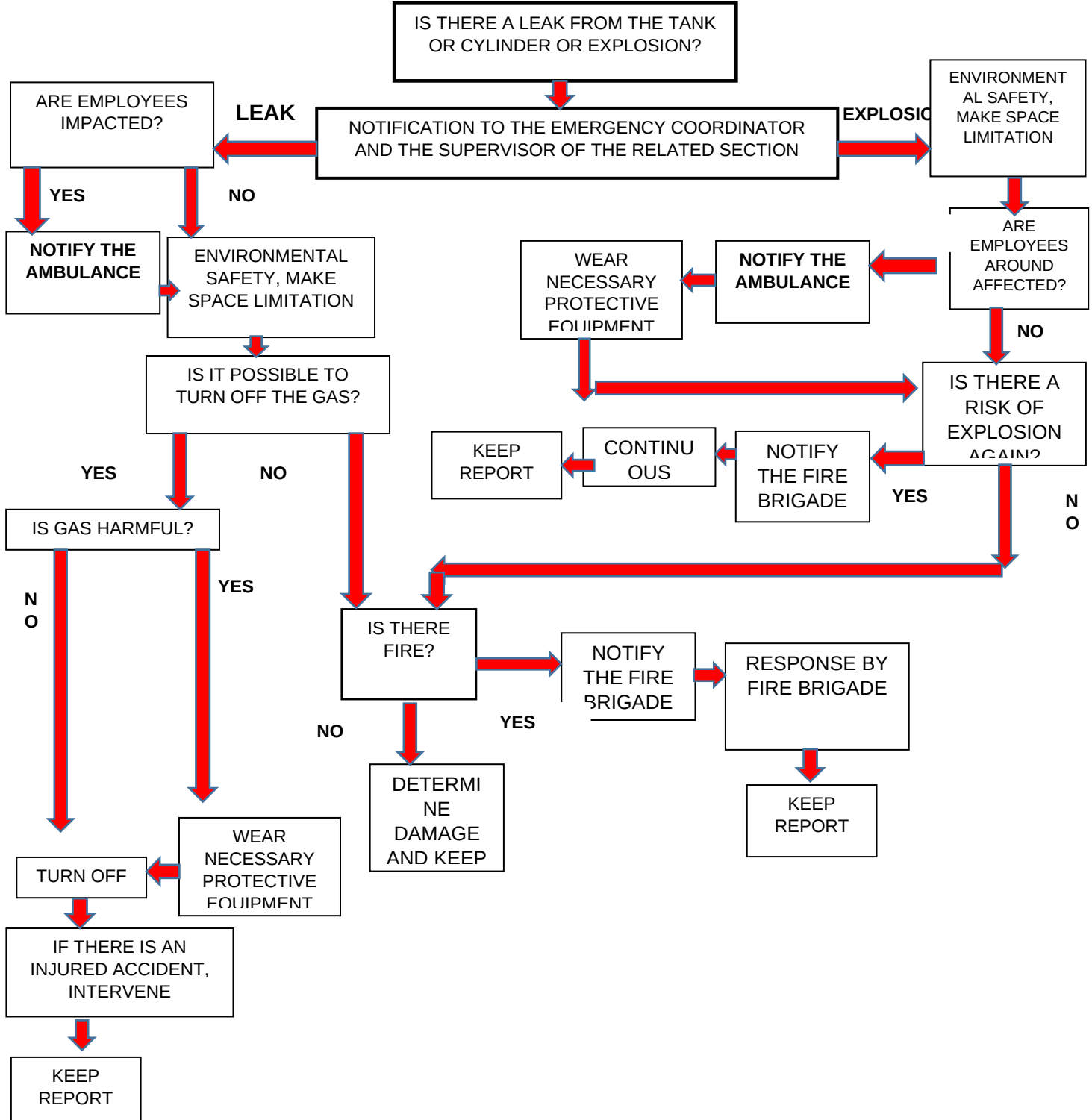




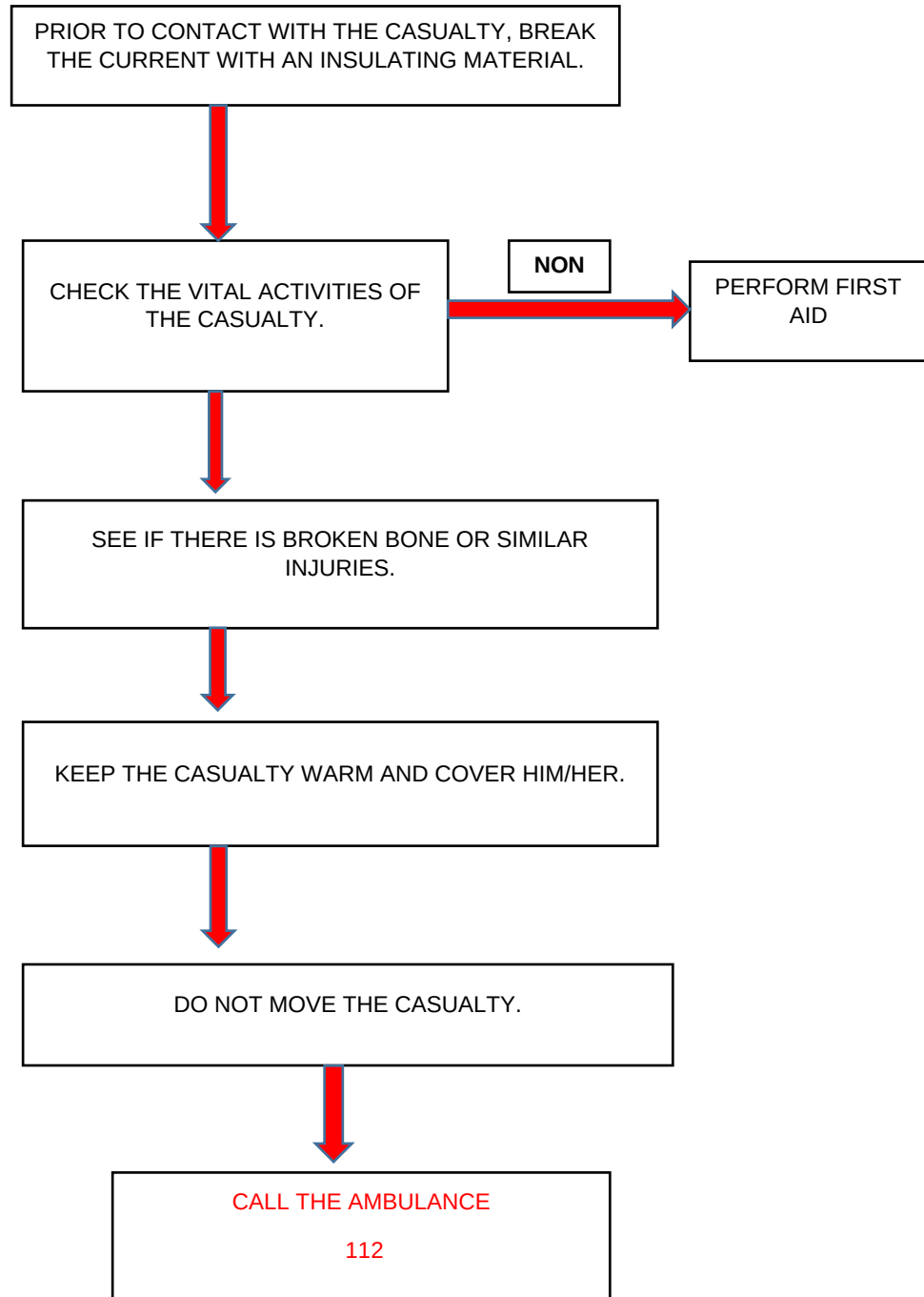
FUEL TANK LEAK AND FIRE EMERGENCY PLAN



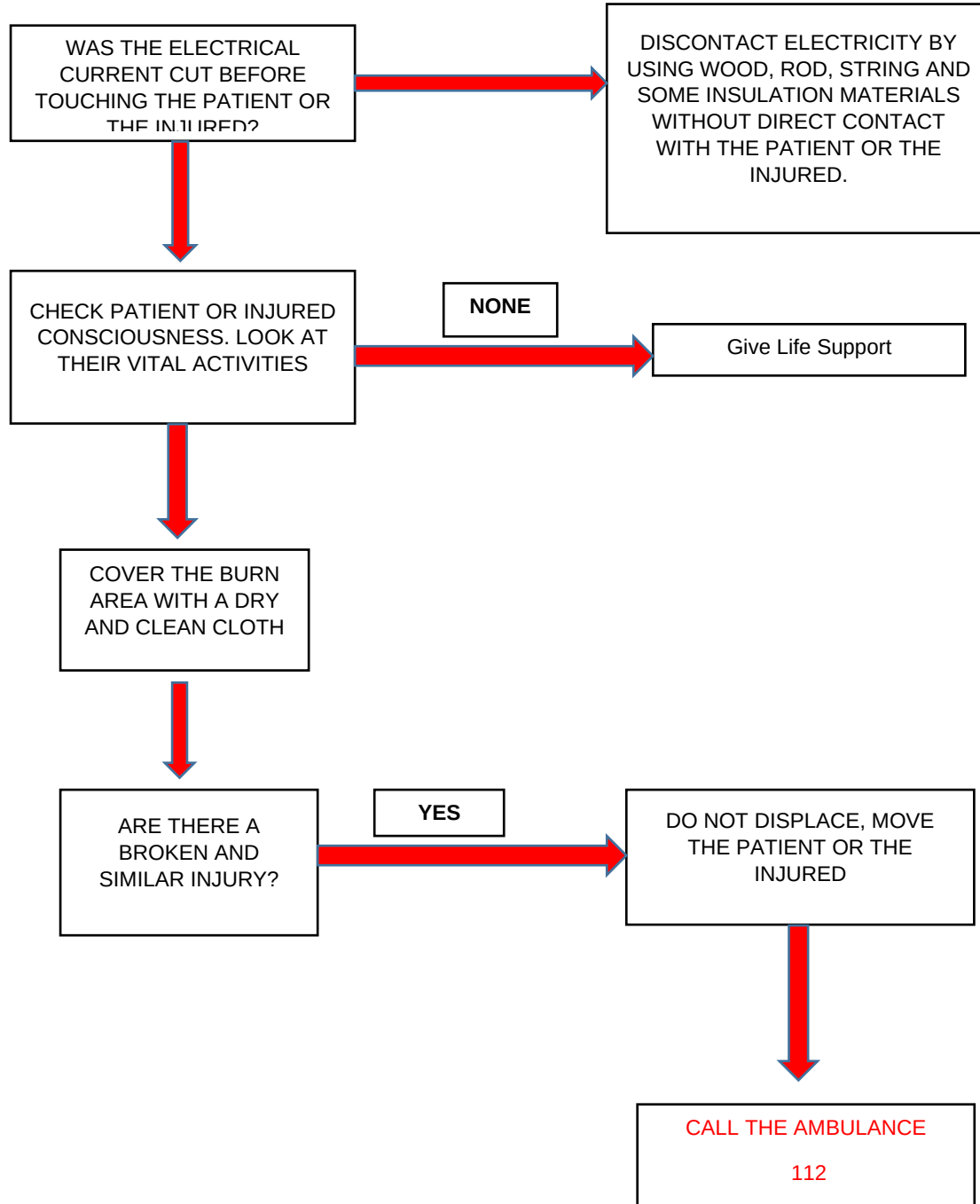
EMERGENCY FIRST AID PLAN IN PRESSURIZED TANKS AND CYLINDERS



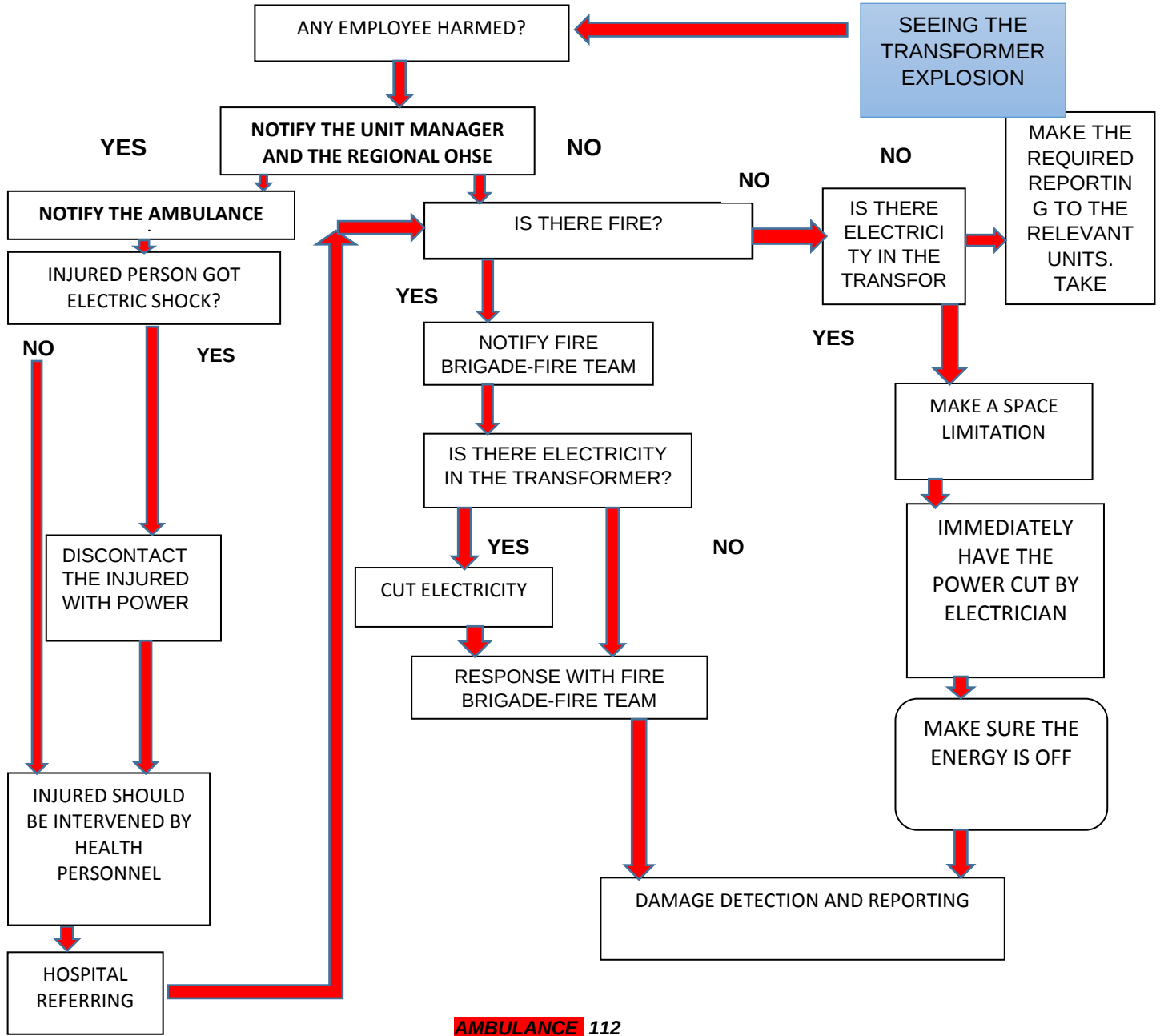
ELECTRIC SHOCK EMERGENCY FIRST AID PLAN



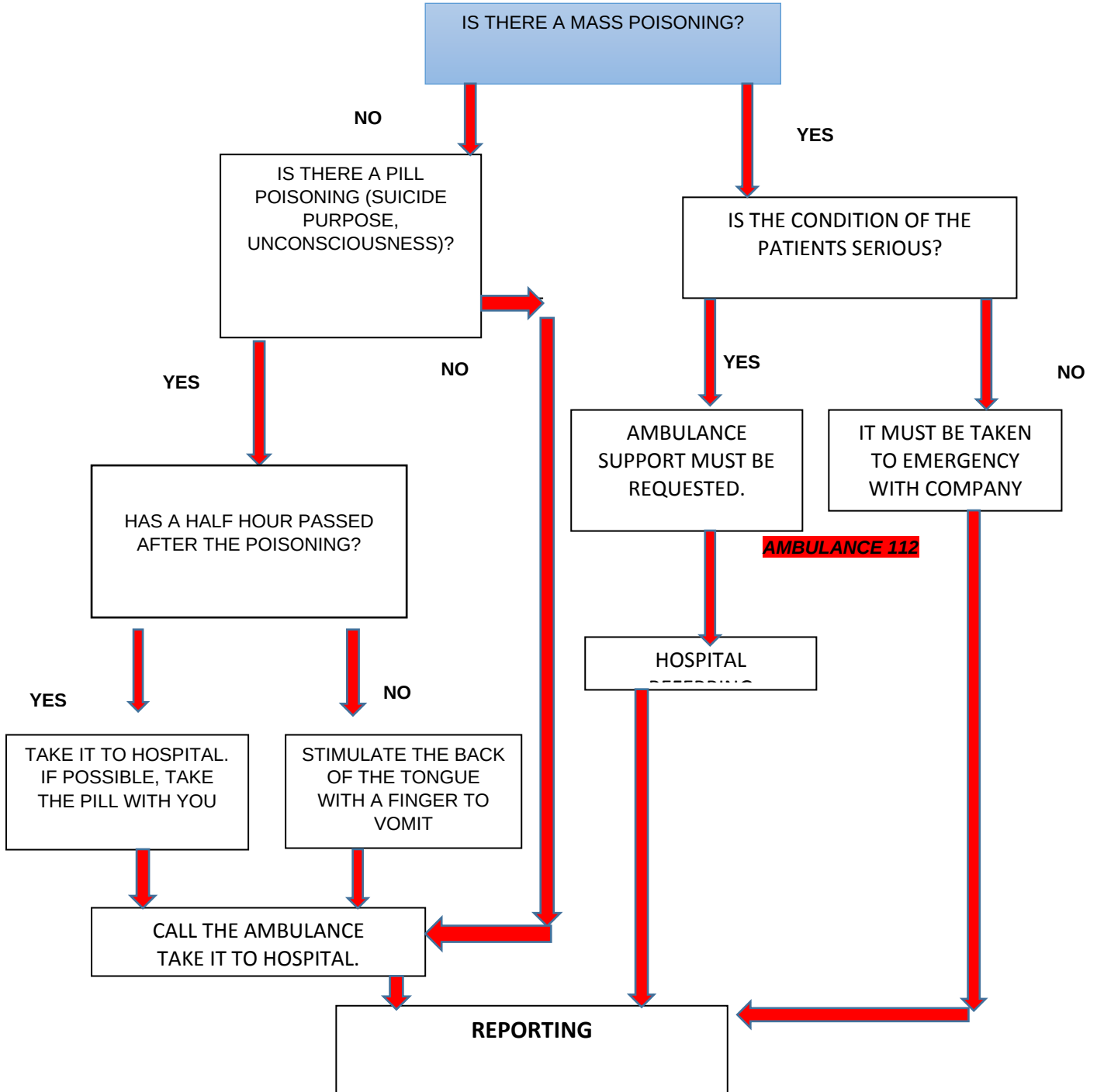
ELECTRIC BURNS EMERGENCY FIRST AID PLAN



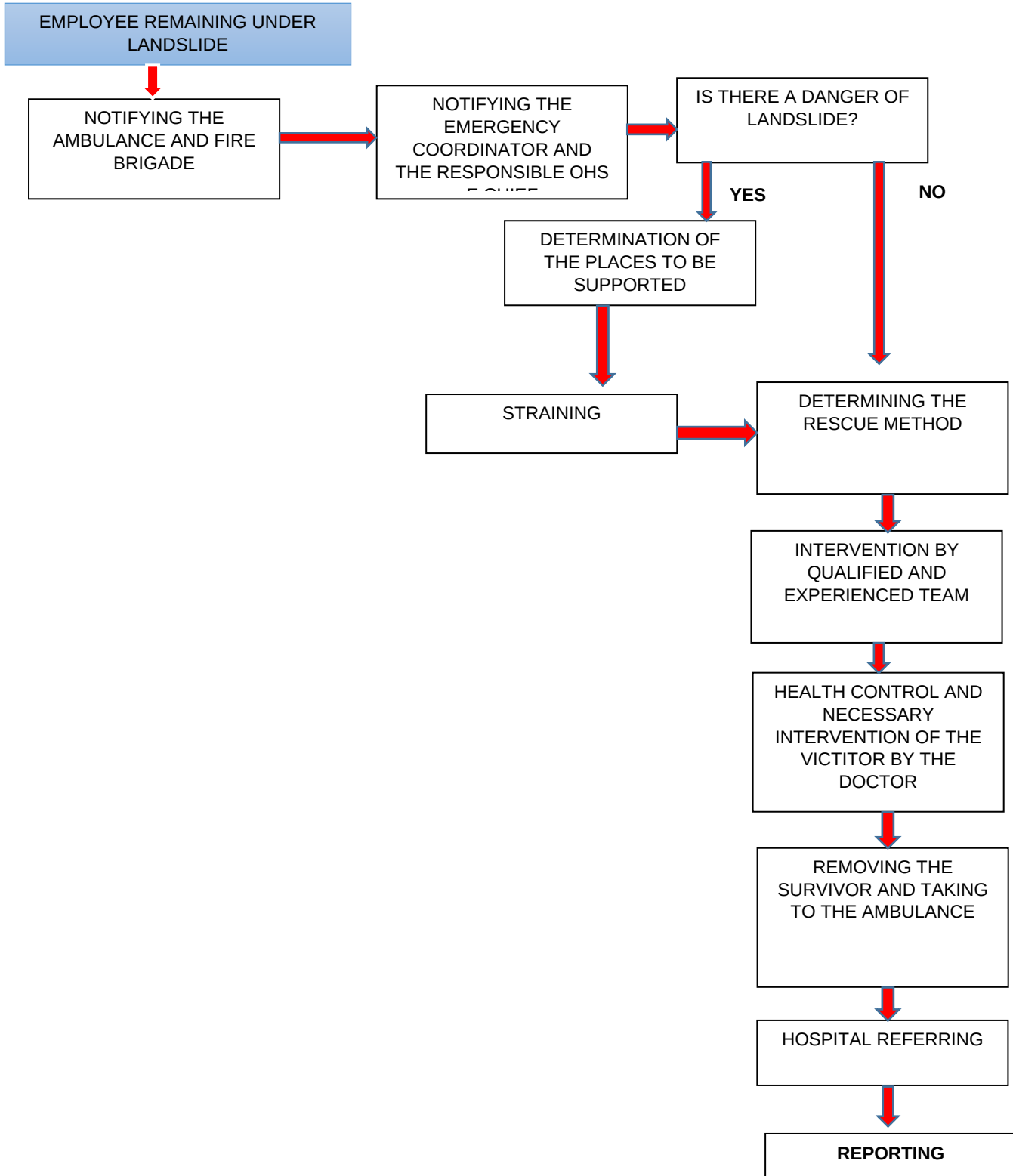
TRANSFORMER EXPLOSION EMERGENCY PLAN



EMERGENCY FIRST AID PLAN IN POISONING

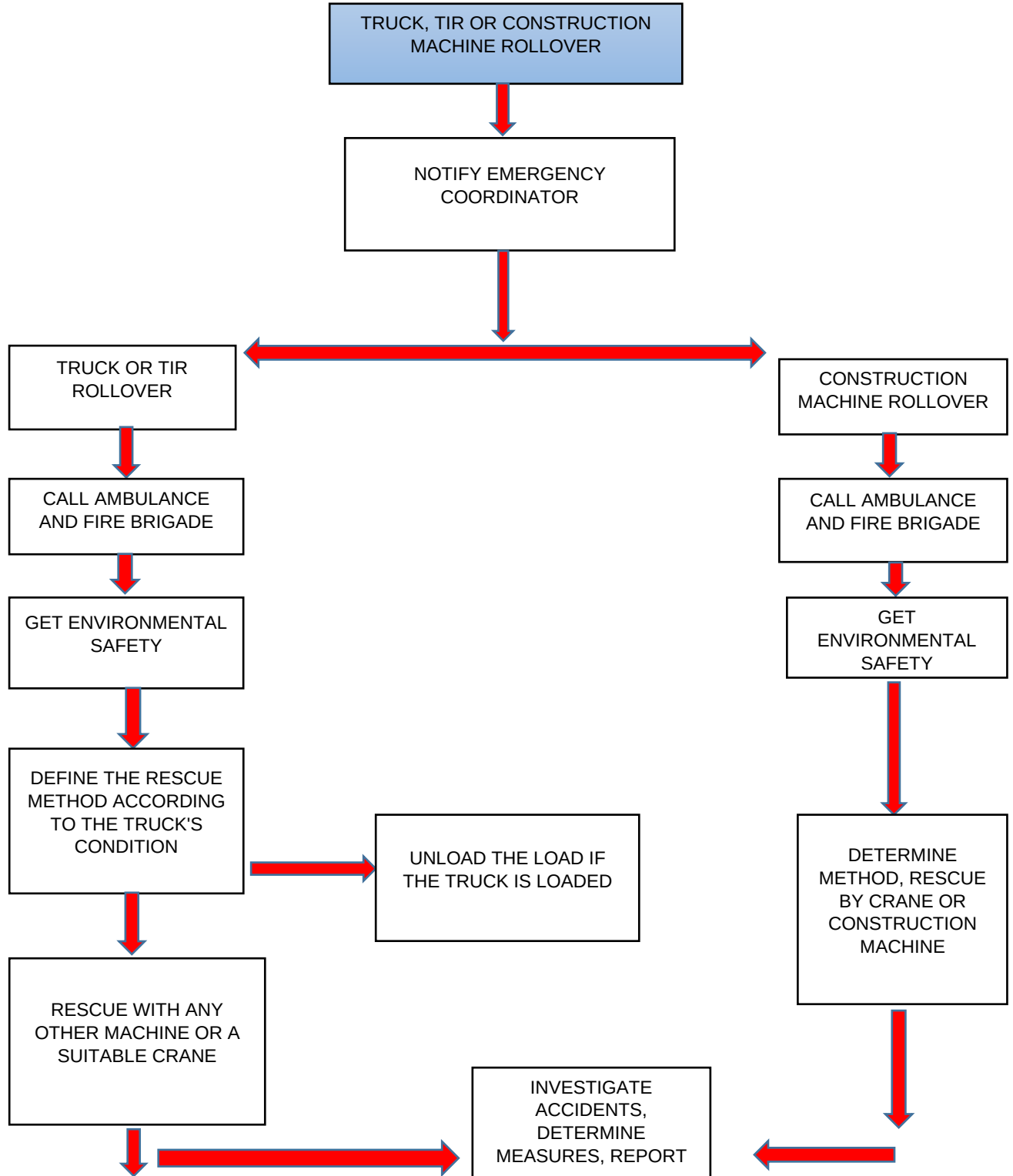


LANDSLIDE AND DRILL EMERGENCY PLAN

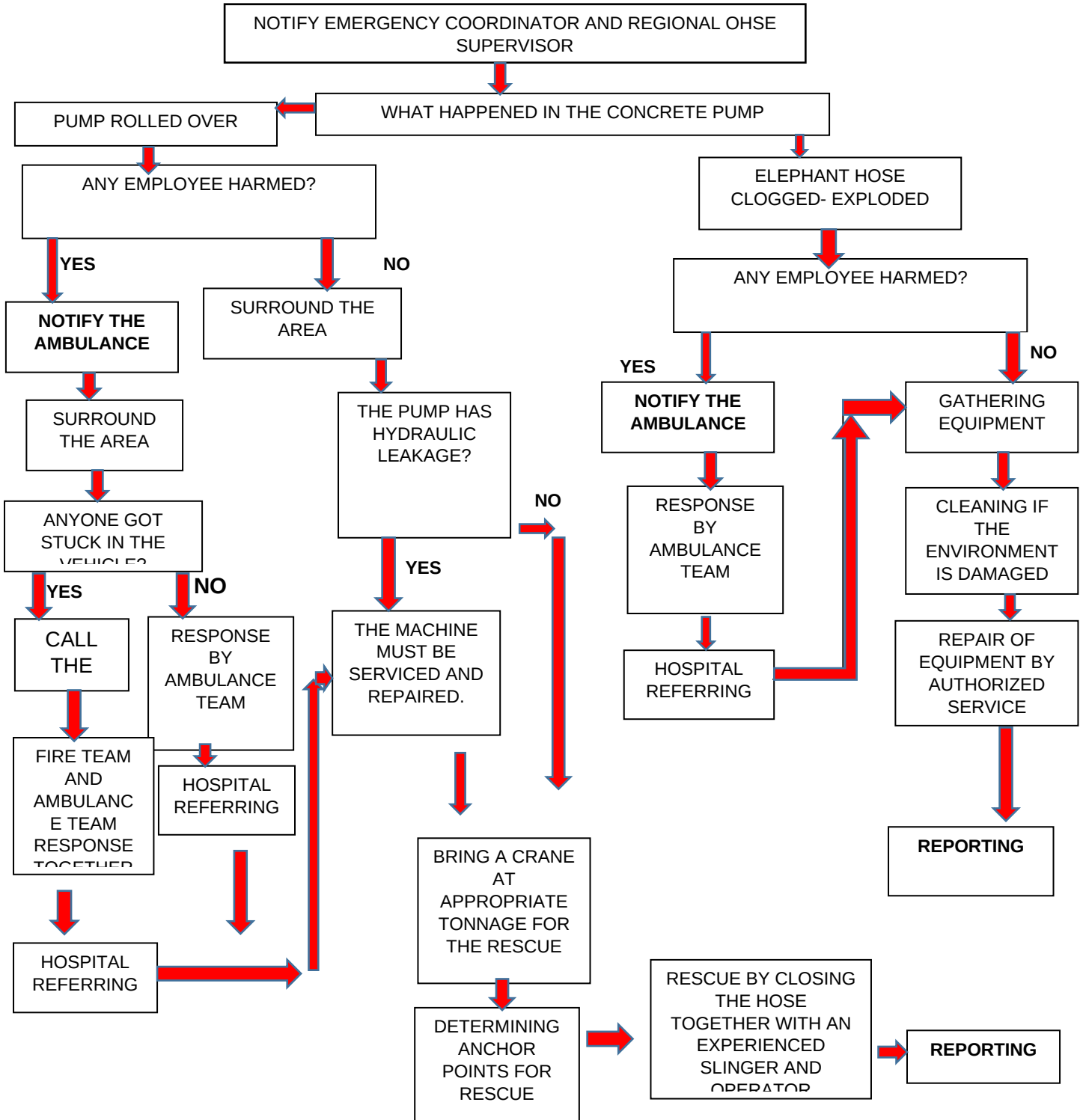




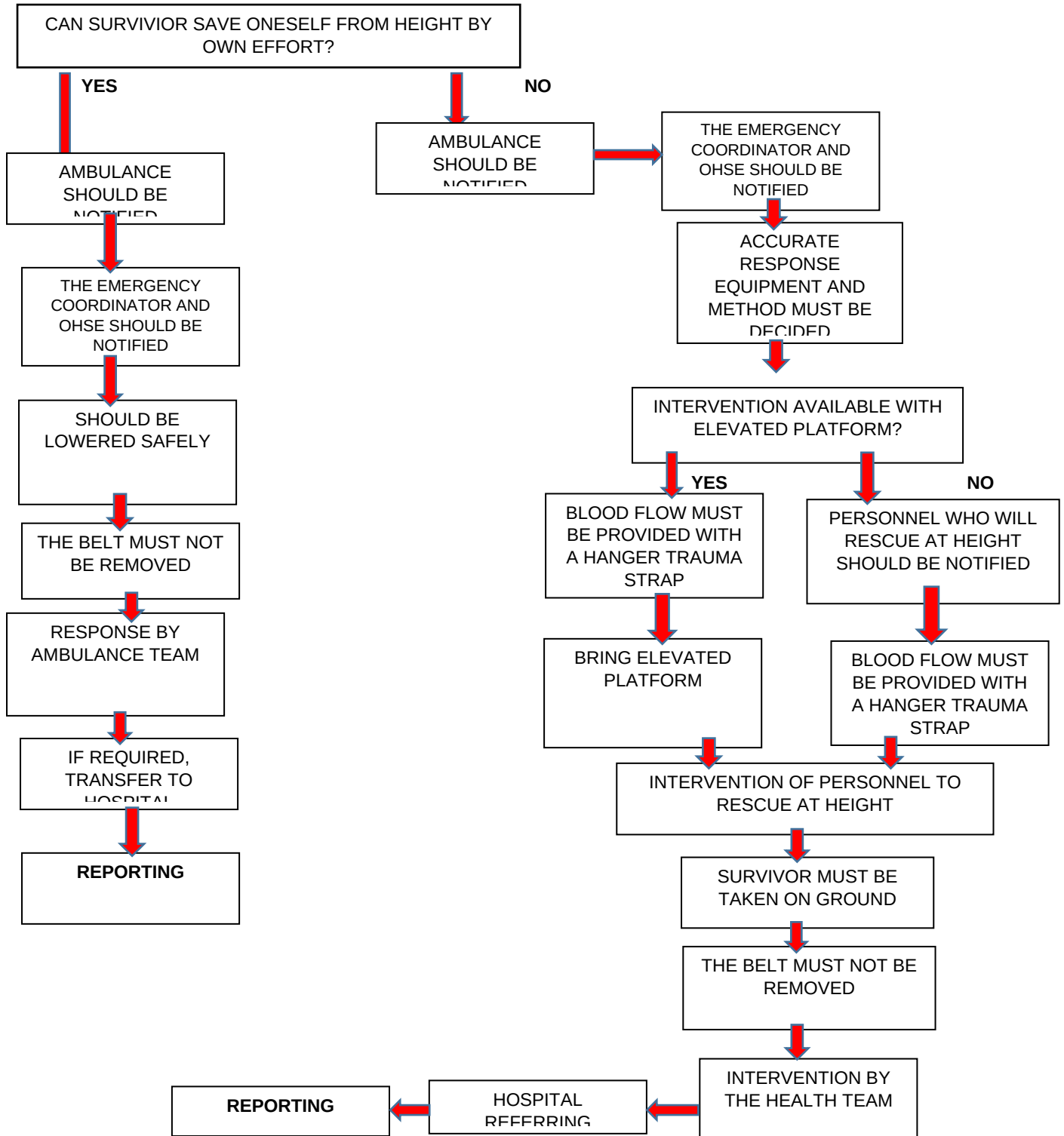
TRUCK, TIR OR CONSTRUCTION MACHINE ROLLOVER EMERGENCY PLAN



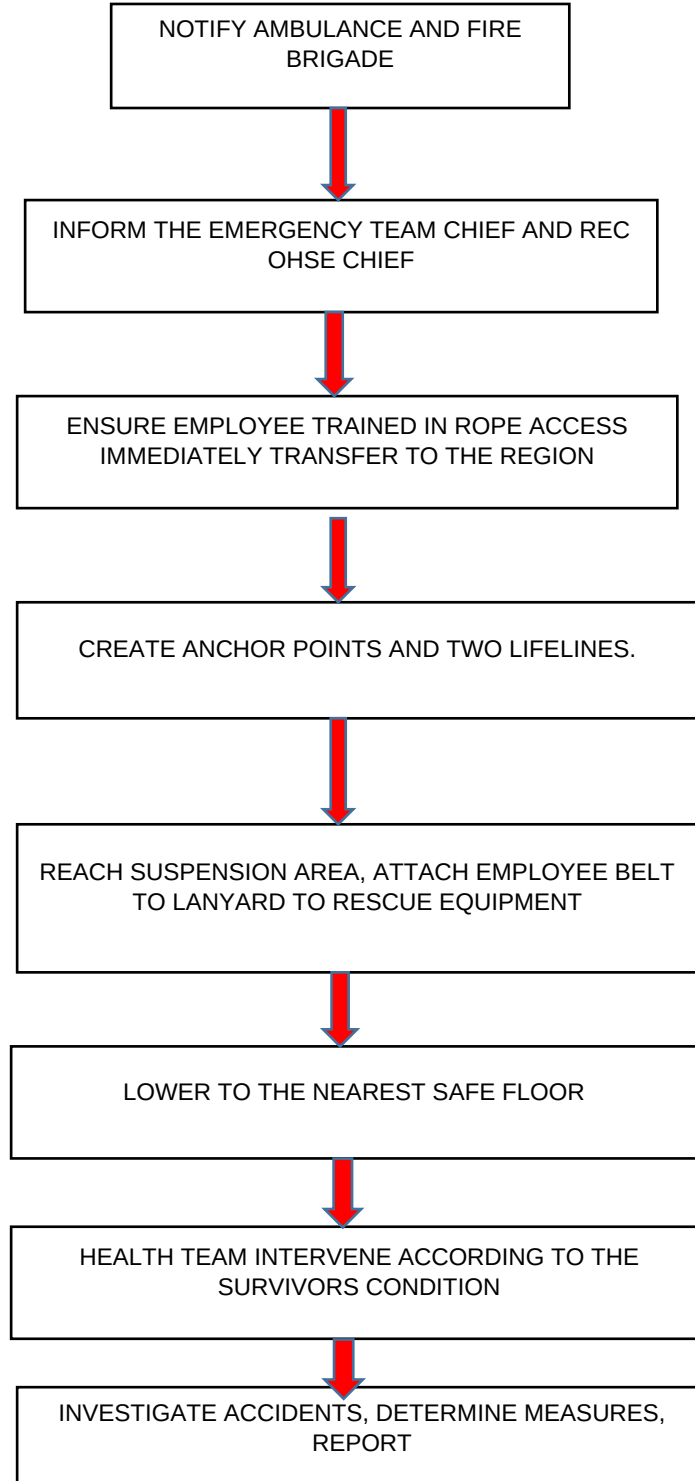
CONCRETE PUMP EMERGENCY AND FIRST AID PLAN

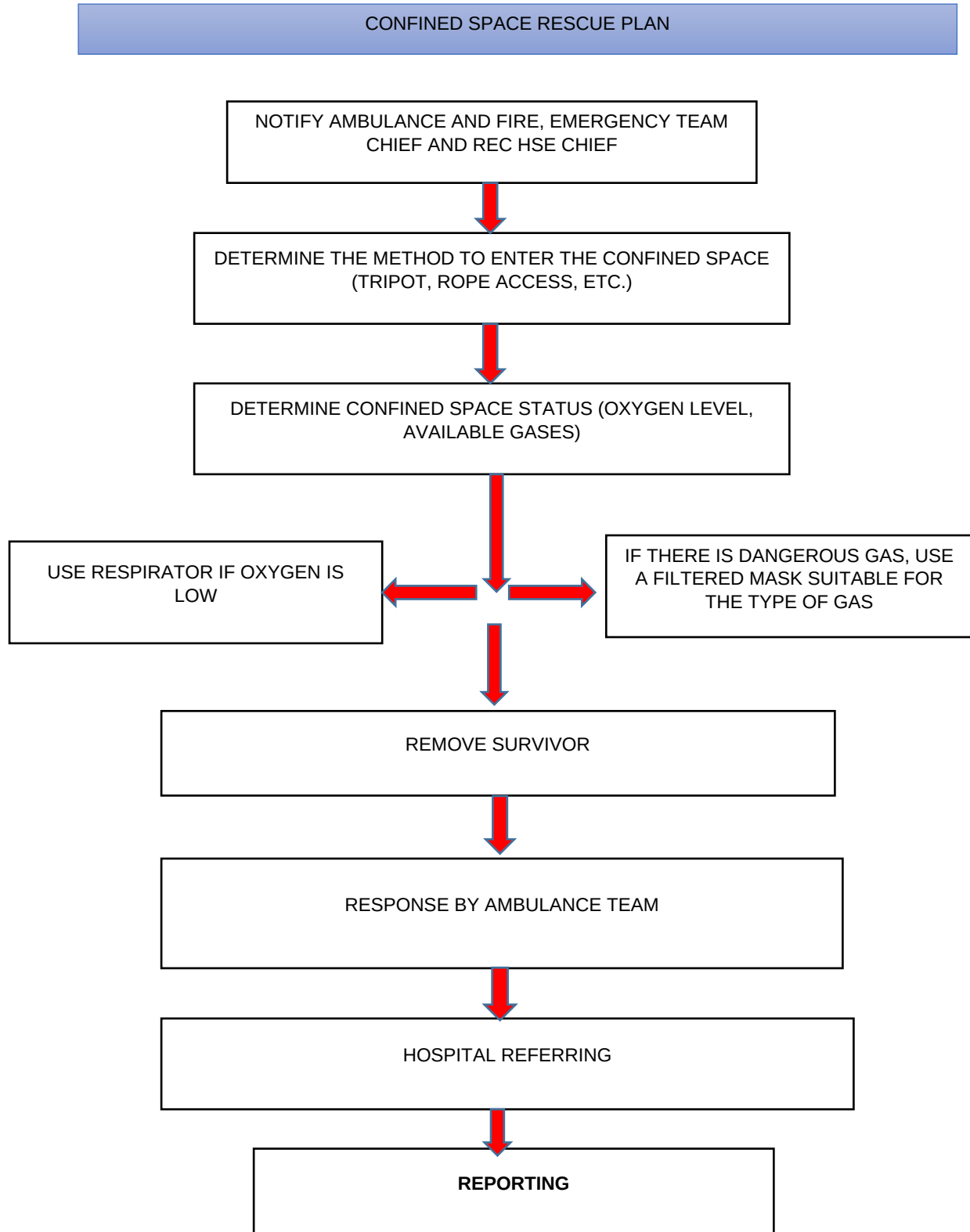


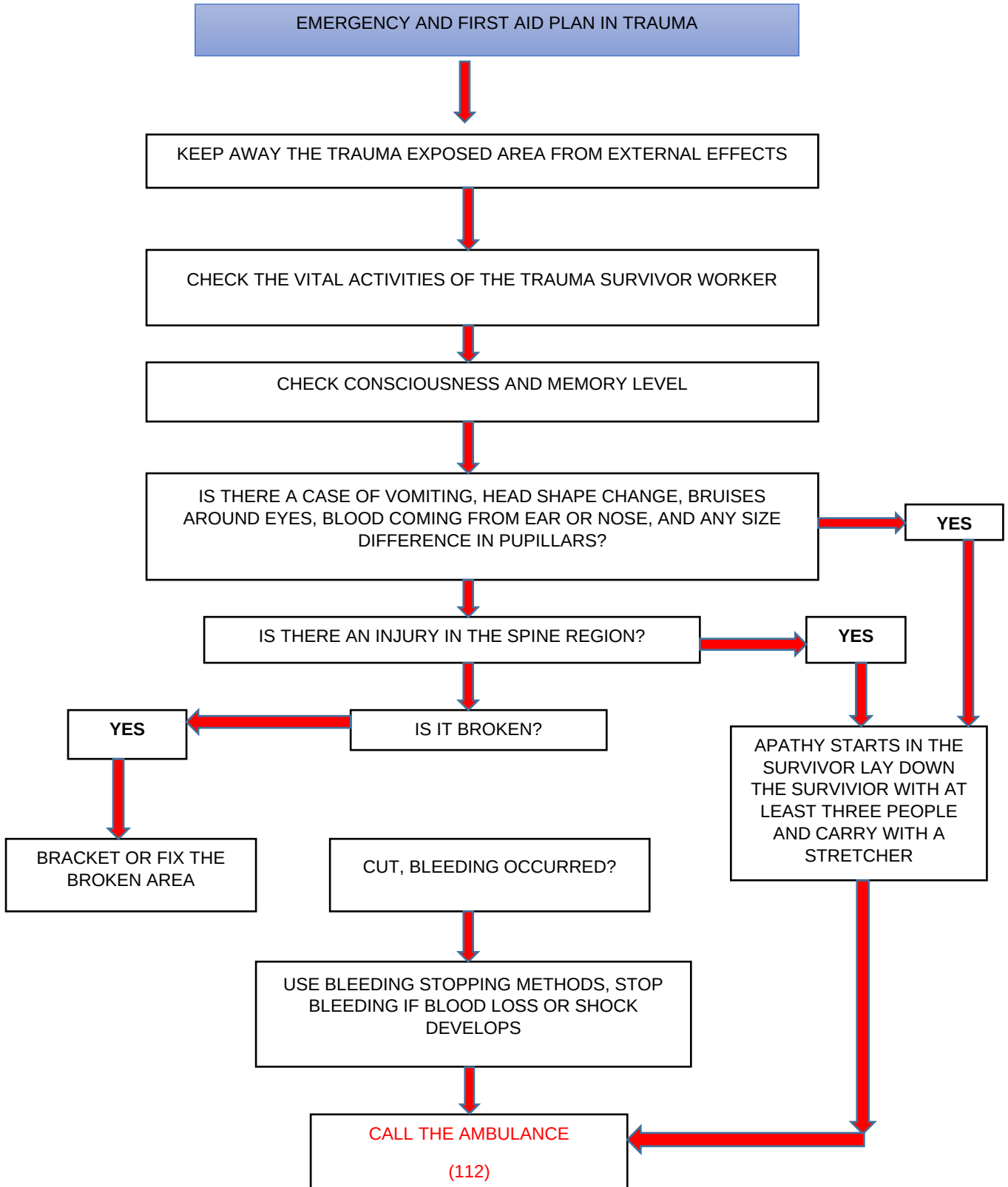
HIGH RESCUE EMERGENCY FIRST AID PLAN



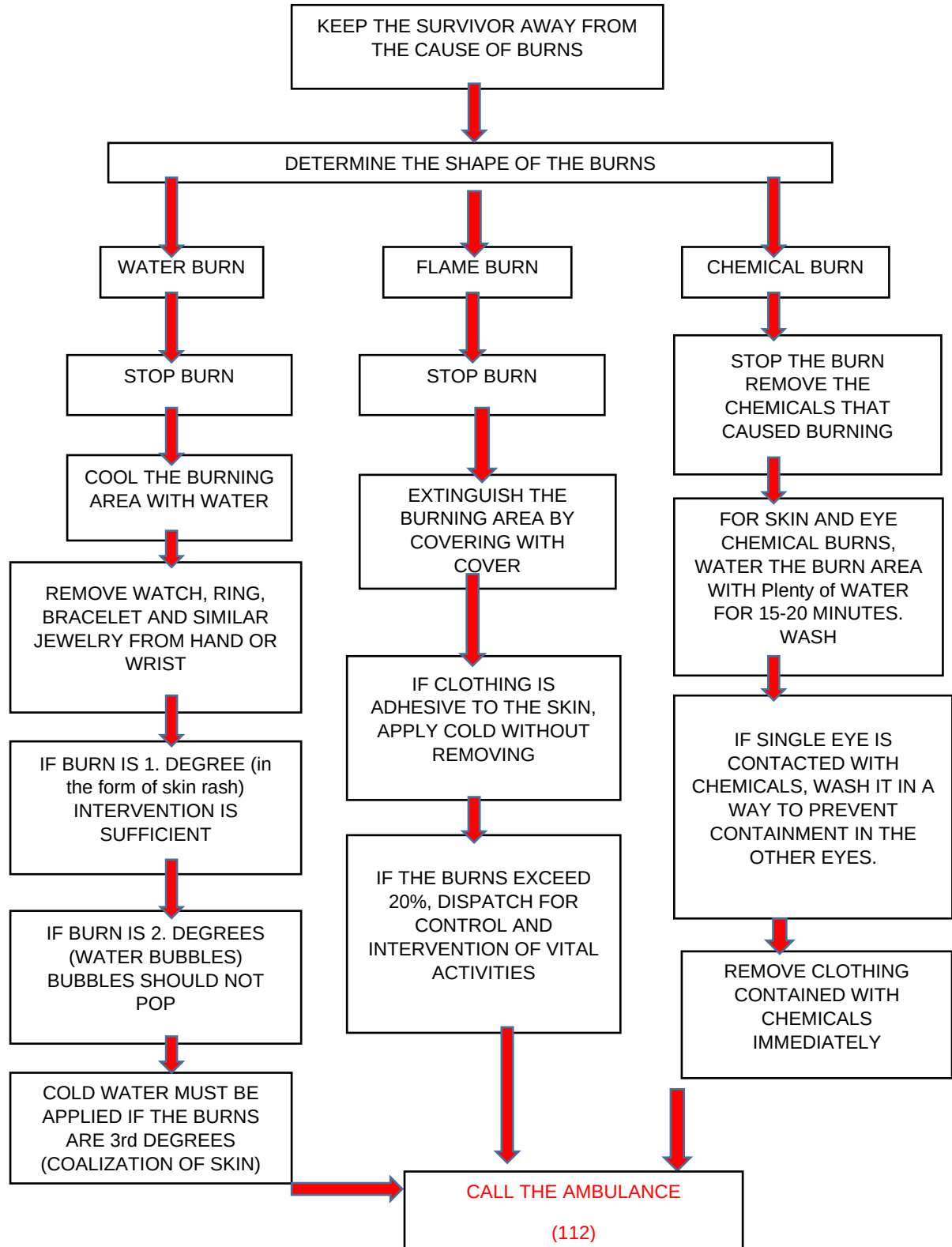
EMERGENCY PLAN FOR SUSPENSION IN SHAFT



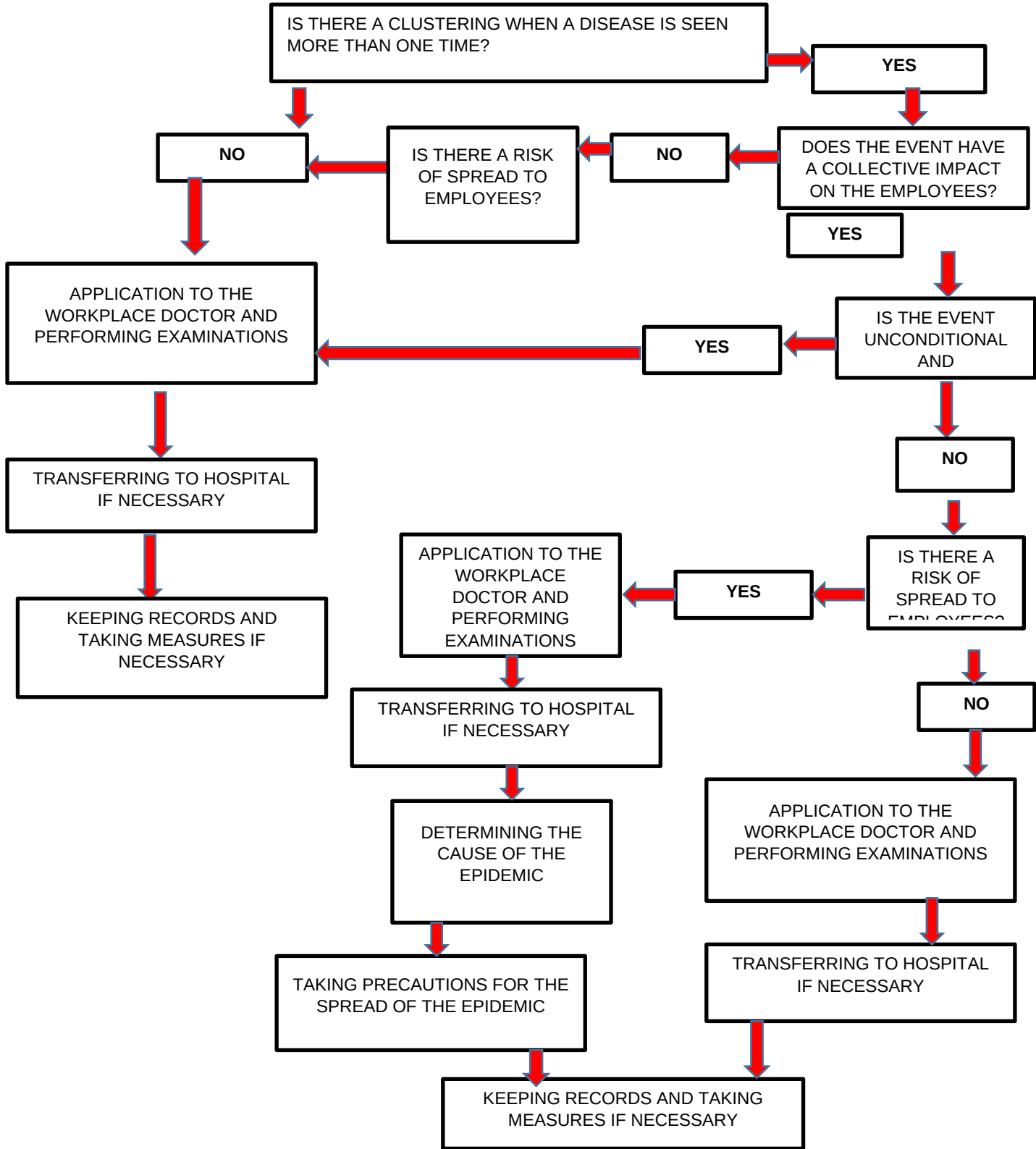




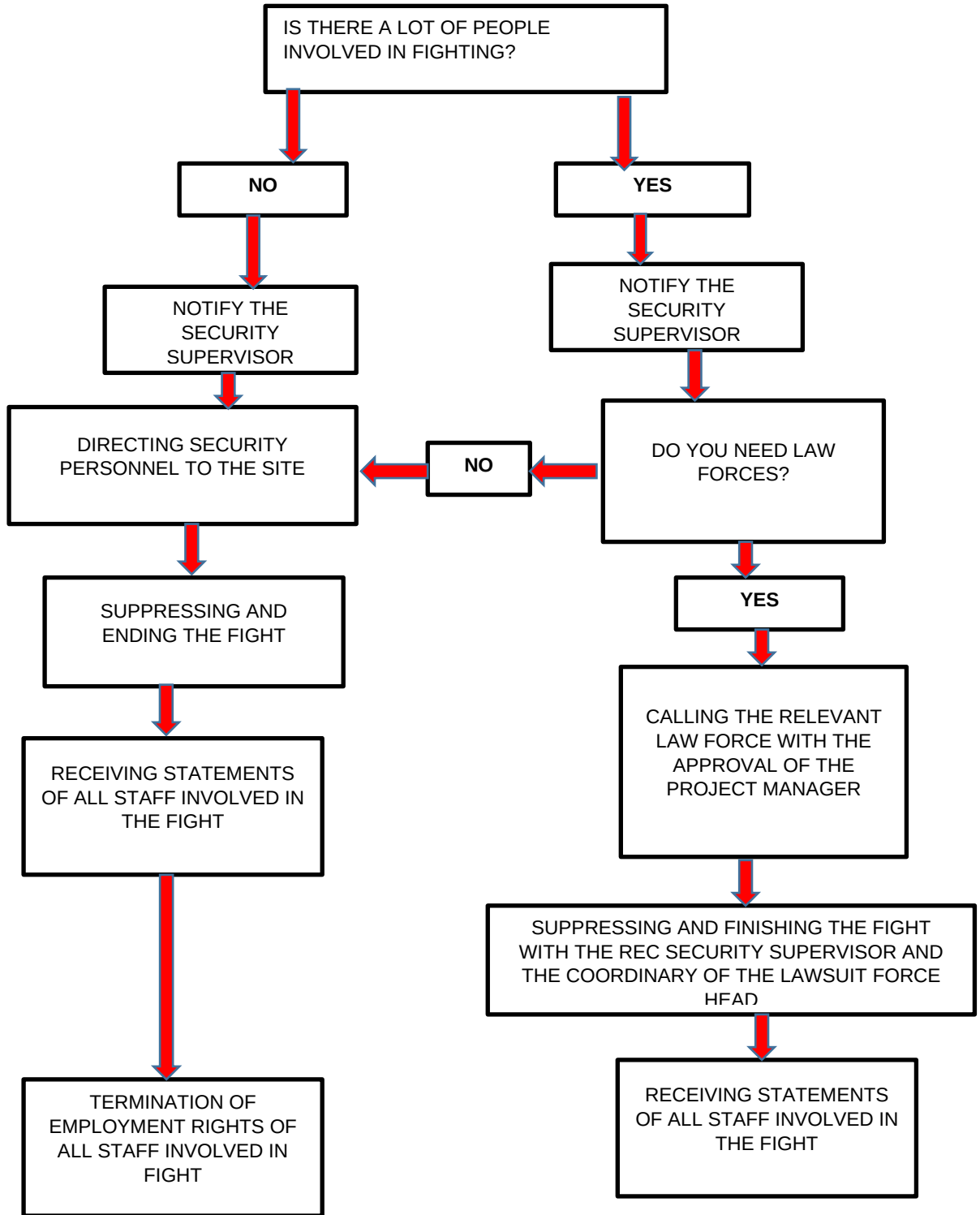
EMERGENCY AND FIRST AID PLAN FOR BURNS



EPIDEMIC EMERGENCY PLAN



EMERGENCY PLAN IN FIGHT



EMERGENCY LEADER AND EMERGENCY TEAMS

SEARCH-RESCUE-EVACUATION TEAM				
No	First and Last name :	Signature	Team Member	TELEPHONE NUMBER
1	UĞUR YALNIZ		Team Leader	0 537 675 43 39
2	ÇAĞLAR KESİNCİ		Team Leader Ass.	0 506 189 62 42
FIRE FIGHTING TEAM				
No	First and Last name :	Signature	Team Member	TELEPHONE NUMBER
1	HAKAN OZCIMENOGLU		Team Leader	0.544.676.22.91
2	YASİN ÜSTÜN		Team Leader Ass.	0.544.586.61.52

FIRST AID TEAM				
No	First and Last name :	Signature	Team Member	TELEPHONE NUMBER
1	HAKAN KIZILTAN		Team Leader	0530 306 29 89
2	ONUR GÜL		Team Leader Ass.	0543 485 72 94



The form to be filled after each emergency response;

Description of Emergency Situation and Intervention		
Location	Reason:	Date:
Brief Description of the Emergency:		
<div>Damaged Employee/Tool Equipment/Manufacturing</div>		
<div>Emergency Response Time:</div>		
<div>Time Taken to Resolve the Emergency:</div>		
<div>Failures in Emergency Response</div>		
<div>Employees Participating in Emergency Response</div>		

Security Team			
		SECURITY OFFICER	
		SECURITY OFFICER	
		SECURITY OFFICER	

The night supervisor changes according to the shift.

EMERGENCY COMMUNICATIONS		
CONTACT	TELEPHONE NUMBER	RADIO CHANNEL
AMBULANCE	112	
FIRE BRIGADE	112	
EMERGENCY COORDINATOR (MANAGER)	Production Manager	
EMERGENCY CHIEF	HSE Chief	



Emergency Management Center;

Emergency Management Center; It is the area defined as the head office building.

COMMUNICATION

Registrar/Communication: Fire Response Team (RADIO... GENERAL CHANNEL)

Registrar/Communication: Rescue team (RADIO...GENERAL. CHANNEL)

Registrar/Communication: First Aid Team (RADIO... GENERAL. CHANNEL)

Registrar/Communication: Ambulance (RADIO... GENERAL. CHANNEL)

Registrar/Communication: Security (RADIO...GENERAL . CHANNEL)

Registrar/Communication: Fire Brigade 112

Emergency Management Center Supervisor (ADKMA) is the project manager. It enables the management of the emergency and the making of the final decision.

- 1) Emergency Management Center Deputy Chief is the deputy project manager, deputizing in the absence of ADKMA and managing the emergency.
- 2) Although previously allocated to different units, the channels allocated to the emergency units below, together with the emergency announcement, will only be used for communication for this purpose.
- 3) Long sentences will not be used in the current emergency report and the channel will be emptied as soon as possible.
- 4) The information received and sent in the communication will be recorded by the registrar in the registrar's communication book over time.
- 5) The information received, for example;
"Fire response recorder - Supervisor" will be warned first, and after the supervisor says I'm listening, he will convey the current information. Unless ADKM says "I am listening to a fire response recorder", news transmission will not be carried out.
- 6) In news transmission, priority is on the emergency side. When an order is requested to the aforementioned emergency side, this information will be sent when the channel is empty.
- 7) The width of the area and if personnel have scattered Emergency Crew assembly sites in this area, the public address or all radio channels should be announced at or. The aforementioned area is the closest to the emergency, and the emergency teams will make their counts in the assembly areas and report to ADKM.
- 8) When missing personnel are detected, a rescue operation will be carried out first.
- 9) Rescue activity will be carried out by fire brigade personnel in case the area contains fire and therefore smoke.
- 10) The decision to cut off the lighting energy in the areas will be made by ADKMA according to the personnel count results in the assembly areas and the absence of deficiency.
- 11) In the communication made over the fire brigade team personnel, ADKM will generally have information about the incident that will remain on the listener's notice.
- 12) The reported personnel ID will be compared with the reported ID in the census results. If the identity information of the reported and rescued personnel is not the same, an order should be given to continue the rescue activity.



13) The following numbers are called by the Foreign Aid Communications personnel with the approval of ADKMA, depending on the nature of the emergency.

- **AMBULANCE 112**
- Police Help 112

Notes :

NOTE 1: ADMM (EMERGENCY RESPONSE CENTER):

- 1) Emergency management,
- 2) Having wired and wireless communication means,
- 3) Having a general sketch of the construction site,
- 4) One of the current Emergency Response Plan copies is available,
- 5) Emergency Center Manager, Equipped by Emergency Response Supervisor,
- 6) It is the meeting area of Emergency Response and Technical Team Personnel.

NOTE 2: ADMM Construction Site Head office building At least 3 radios are always charged in the aforementioned building. With the emergency announcement, group messengers take 1 radio and switch to general channel 01.

NOTE3:It is ADMM's responsibility to count the Emergency Response Teams. Emergency Response Teams will make their own counts and report to ADMM.

NOTE4:It is ADMM's responsibility to count the Emergency Response Teams. Emergency response teams will make their own counts and report to ADMM.



AYEM
Altyapı Yatırımları Genel Müdürlüğü

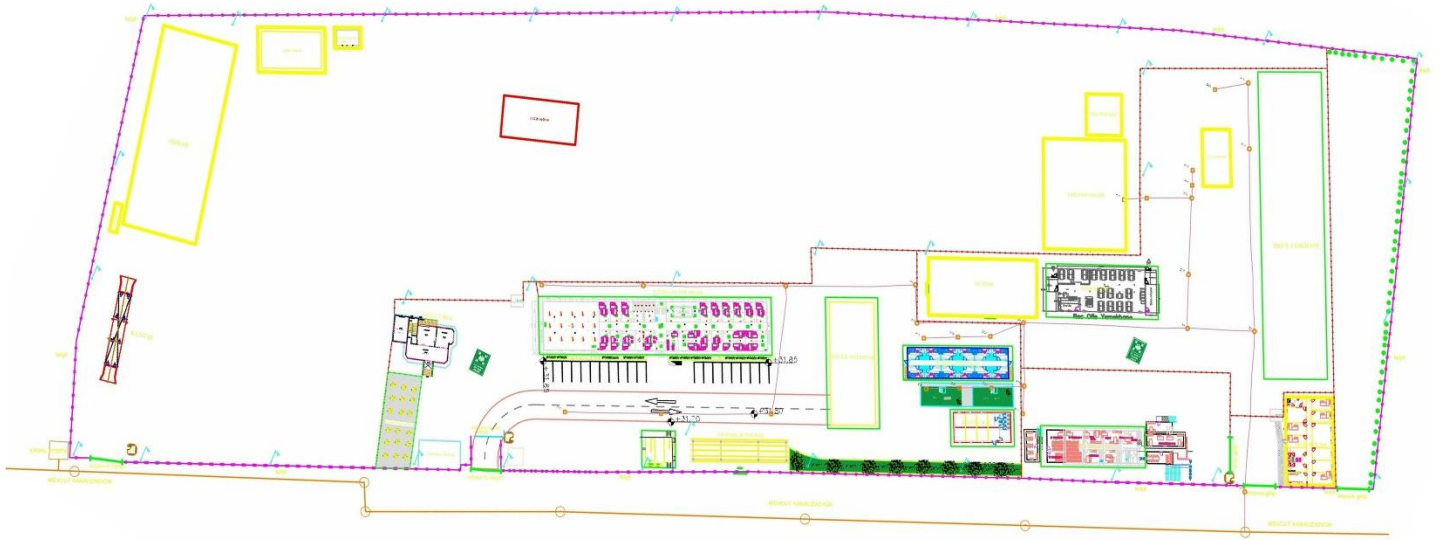
ALTAŞ
ALTYAPI

METROPLAN
MÜHÜRÜK MÜHÜRÜK SAN. VE TİC. LTD. ŞTİ.

(Annex

Emergency assembly points

MAG PROJESİ YENİCE ŞANTIYESİ MOBİLİZASYON PLANI



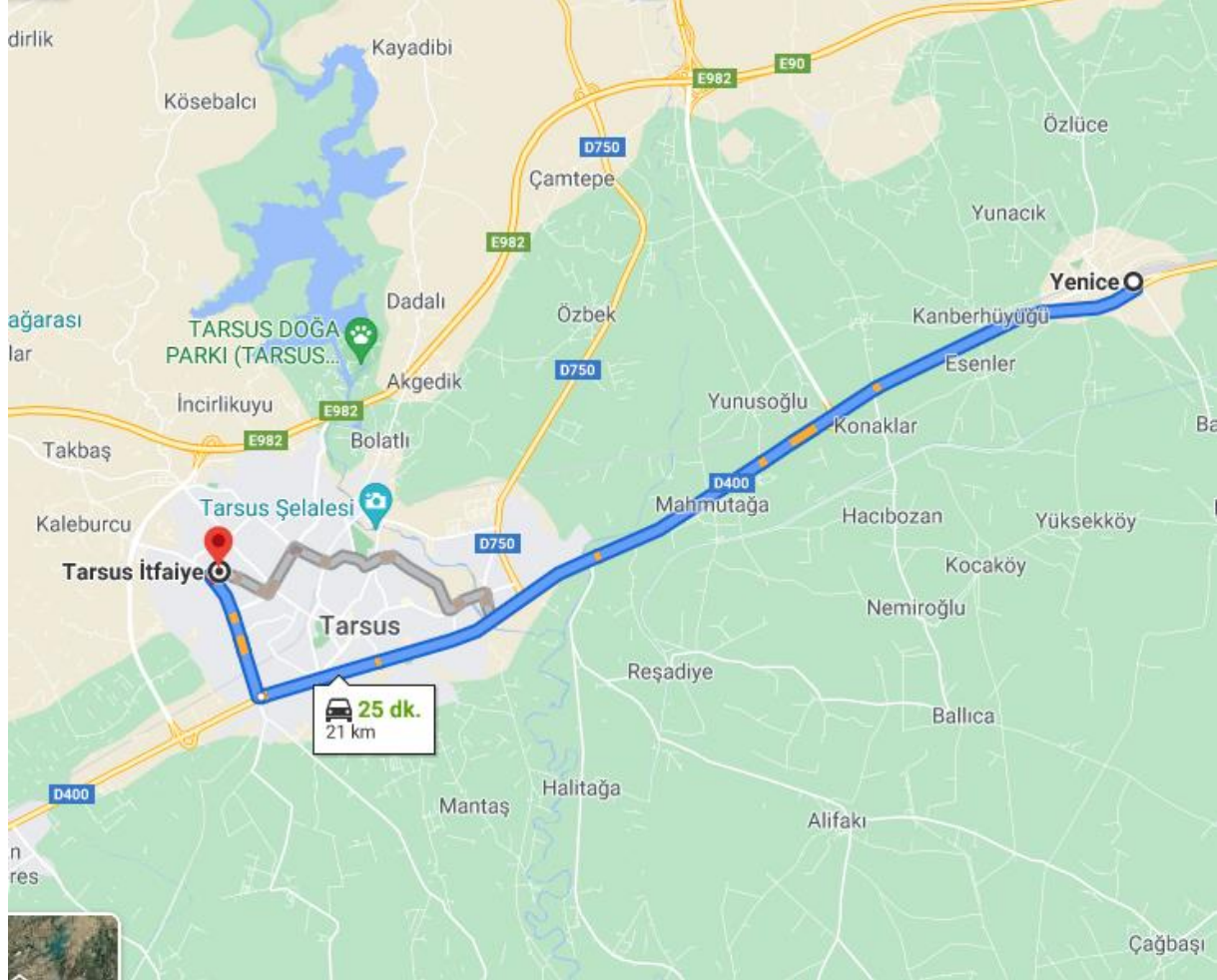


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Altyapı Yatırımları Genel Müdürlüğü

ALTAŞ
ALTYAPI

METROPLAN
MÜŞAVİRLİK MÜHENDİSLİK SAN. VE TİC. LTD. ŞTİ.

Nearest Fire Brigade



TARSUS FIRE STATION

ADDRESS :Bağlar 0415 sok. No:29 33420 Tarsus/Mersin

Telephone: 0324 533 3515

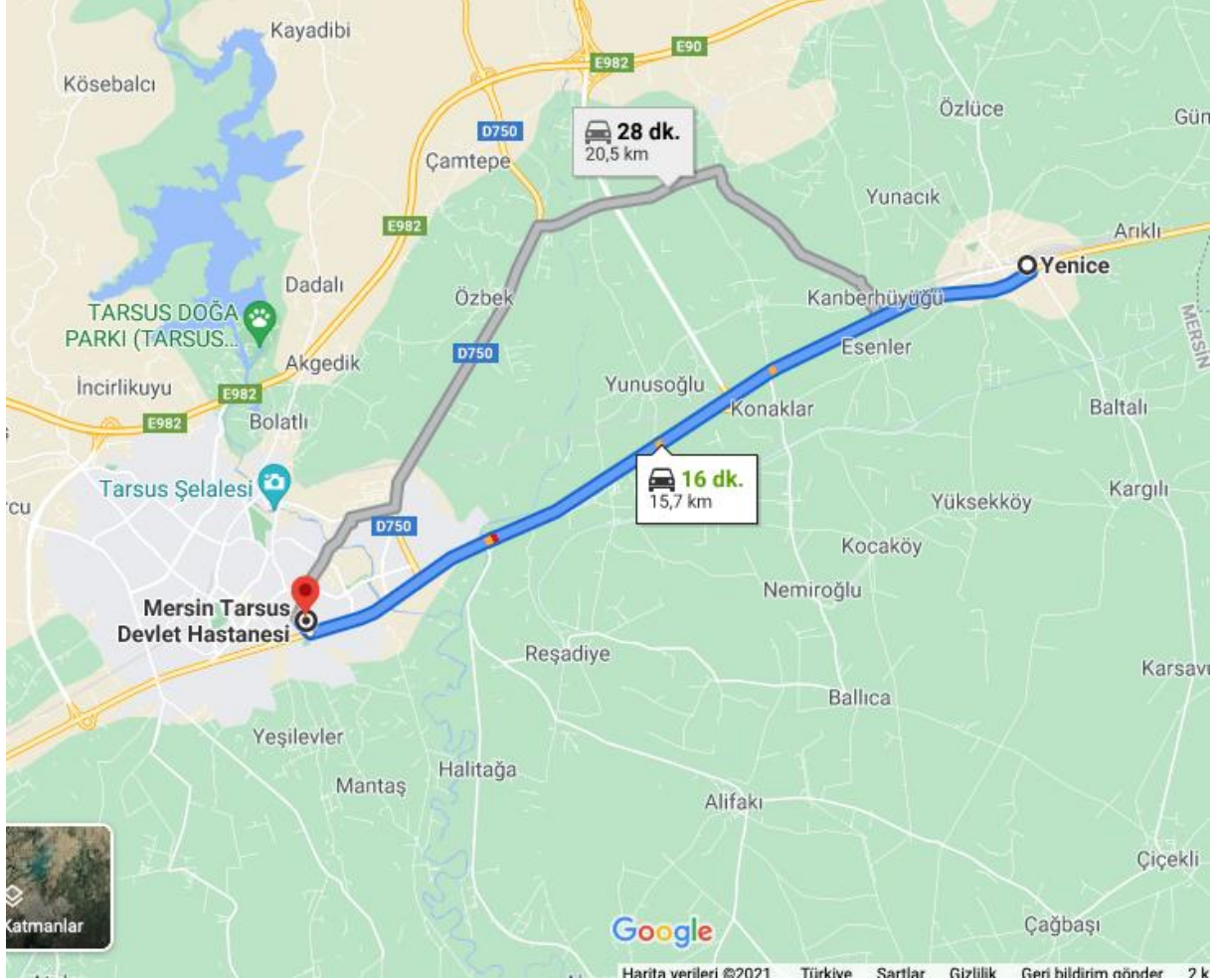


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MÜŞAVİRLİK MÜHENDİSLİK SAN. VE TİC. LTD. ŞTİ.

Nearest Hospital



TARSUS STATE HOSPITAL
Address: Donuktas cad. No:27 33440 Tarsus/Mersin
Phone: (0324) 613 47 00