ADRIATIC METALS PLC

VARES PROJECT

HEALTH AND SAFETY MANAGEMENT PLAN

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CONTENTS

1.0 SCOPE

The purpose of the Health and Safety Management Plan (HSMP) document is to:

- outline the applicable legislation and standards relevant to this plan;
- define roles and responsibilities;
- outline mitigation measures for management of health and safety related topics; and
- define monitoring and reporting procedures.

This Health and Safety Management Plan (HSMP), with its procedures listed in the "Related Documents" section, is an integral document prepared for all projects and it applies to all preparation works, mobilization works, construction works, tests and commissioning phase which is applicable to both Eastern Mining d.o.o ("the Owner") and all its Contractors and Subcontractors. For any discrepancies between the rules and regulations of Bosnia & Herzegovina and site H&S requirements, the more stringent one shall be followed if legal requirements are already fulfilled.

The HSMP defines the tools and methods for managing H&S throughout the project as well as general construction H&S rules for the project personnel to adhere to. Eastern Mining d.o.o. (EM), the Contractor and subcontractors will follow this plan for managing H&S aspects of the work. EM as the Owner will have the responsibility of managing the H&S aspects of the overall project.

EM ensures that HSMP will be strictly followed throughout the project. EM has the right to do periodic and random audits whenever necessary. If non-conformities are observed during these audits or regular site visits, EM has the right to give a "Stop Work Order". The work will not start until corrective actions have been taken and the risks eliminated or properly controlled.

The scope of this document includes Project H&S procedures and plans to be issued subsequently.

All projects involve the following type of activities:

- mitigation measures for management of health and safety related topics;
- transportation of personnel, construction machinery, equipment, consumables, tools and utilities, project materials and waste material to site and/or from site.
- operation of major construction machinery for excavation, cut and fill, compaction in earthworks.
- piping and steel cutting and fit up, welding and erection works.
- equipment lifting operations.
- movement of construction machinery to elevated positions.
- working at elevated places.

Additionally, Underground mine H&S management plan will be developed to define the tools and methods for managing underground H&S throughout the project development.

This HSMP and all related plans and procedures shall be communicated to all people that have responsibility on site (acknowledgement records from all Contractor and subcontractor management are required) and each site worker will undertake appropriate safety site induction procedures as well as daily training in safe work practices relevant to their tasks.

The HSMP and all related plans and procedures will be available as reference document by everyone on site, including /subcontractors such that all parties shall have an available copy of this documentation.

For any risk that is not covered in this document, EM will develop H&S procedures which will be also applicable to subcontractors prior to starting any activity.

2.0 LEGISLATION AND STANDARDS

EM will comply with all applicable legislation and regulations in Bosnia & Herzegovina, industrial safety standard and international best practices.

The overall Project will seek health and safety excellence. The success of the project will be judged on its H&S performance. This has a potential of bringing cost benefits, providing H&S becomes an integral and successful part of the business.

Full consideration of H&S will be given throughout the duration of the project execution and an on-going proactive (behaviour based) H&S culture should lead to achievement of this objective.

To achieve the desired excellence on safety performance, EM will implement programmes, as necessary, requiring the active involvement of managers, supervisors and the full workforce.

3.0 DEFINITIONS and ABBREVIATIONS

HSE : Health, Safety and Environment
EM : Eastern Mining d.o.o.
ESIA : Environmental and Social Impact Assessment
Project : All projects
ALARA : As Low As Reasonably Achievable
ATEX : Explosive Atmospheres
COSHH : Control of Substances Hazardous to Health
LTI : Lost Time Injury
LTIFR : Lost Time Injury Frequency Rate

EPC : Engineering, Procurement and Construction
FAI : First Aid Injury
GFCI : Ground Fault Circuit Interrupter
HAZMAT : Hazardous Materials
H&S : Health & Safety
LOTO : Lockout Tag out
LPG : Liquefied Petroleum Gas
MSDS : Material Safety Data Sheet
MTI : Medically Treated Injury
OHS : Occupational Health and Safety
PCB : Polychlorinated biphenyl
PTW : Permit to Work
PPE : Personal Protection Equipment
RCD : Residual Current Device
RPE : Respiratory Protective Equipment
SWL : Safe Working Load
TRIFR : Total Recordable Incident Frequency Rate.

EM means "the Owner". However, for the Contractor and Subcontractors, in terms of H&S responsibilities inherited from the subcontract between the parties or general H&S rules from the Project's HSMP or applicable legislation, the Contractor and Subcontractor shall be accountablefor the H&S of their workers.

Contractor means the primary Contractor and any other company or person working for that Contractor

Owner's Engineer means company or people acting on behalf of Employer/Client/Owner.

Party or Parties means Contractor, subcontractors of EM (the Owner) and their subcontractors.

Project means entire scope of works in all projects to be performed by the parties for EM.

Subcontractor means any company working for a primary Contractor and any other company or person working for that company.

4.0 ROLES AND RESPONSIBILITIES

EM shall ensure sufficient resources are allocated on an ongoing basis to meet the requirements of this plan and that the personnel responsible for the execution of tasks and requirements in the HSMP are competent on the basis of training and experience.

Principal roles and responsibilities for the implementation of this plan are outlined below.

Role	Responsibilities
EM Project Manager	• Plan, Organize, Lead and Control the project team in the provision of full range of contracted activities. • Support and progress the project H&S management programs, and specifically coordinate the commitment & motivation, risk management, incident, investigation, emergency preparedness and other elements for which he has responsibility. • Deliver safe, environmentally sensitive and a cost-effective project. • Award and approval of major subcontractors who have been adequately assessed and H&S trained. • Cancellation of subcontracts for performance failure. • Review resource requirements for subcontractors. • Assessment and approval of H&S and competency. • Maintain awareness and promote project goals in respect of H&S to ensure the implementation of the HSMP.
HSE Manager	• To ensure that the organization on site is set up to promote and implement safe working practices. • Provide advice, and support to Project Manager and Site Chief and executives in implementing and monitoring the Project HSMP and procedures. • Provide H&S Assurance to project management team. • Participate in the development and maintenance of EM Emergency Preparedness and Response Plan and associated procedures. • Participate in the development of security plans. • Lead the development of an H&S system that delivers excellence in H&S performance by developing coaching and training plans and supervising the preparation of materials and delivery of programmers for the project. • H&S activity planning. • Lead the investigation of accidents and incidents. • Maintain H&S records.

Role	Responsibilities
	• Attend internal and external H&S meetings, and effectively communicate on issues related to H&S performance, expectations and strategy. • Promote the elimination and prevention of accident, incident and occupational illnesses risks at workplaces. • Prepare H&S equipment lists concerning project specifications. • Supervise the activities of the occupational health unit. • Advise on precautions to take against physical and chemical working environment hazards. • Organize training and meetings in order to establish and increase the H&S awareness, morale and motivation of employees. • To ensure all project personnel are aware of their responsibilities and are implementing them in accordance with the HSMP. • It is the responsibility of EM HSE Managers and his/her assistant to encourage near miss reporting, and; • • HSE Manager is required to be fully aware of the works being carried out on site and fully involved in all planning, progress meetings and regular meetings. Approval and development of Job Safety Analysis is HSE Manager and his/her assistant's responsibility.
EM Site Manager	• Review resource requirements for subcontractors and monitor / audit H&S performance. • Ensure the practical implementation of the HSMP. • Full accountability and responsibility for all H&S aspects and performance relating to the contract. • Ensure risks are identified, controls are in place and that these controls are assured and impacting the workface. • Participate in and promote the on-going development of effective communication between all parties involved in the project. • Ensure that Lessons Learnt are appropriately considered during the construction of the project. • Develop and train local personnel within the project team. • Ensure undertaking of close-out meetings to identify losses / successes and lessons learnt for continual improvement. • Ensure that Construction Work Register logbook whose details are defined in the section named "Information and Documentation" of this Plan, is provided before and maintained throughout the construction

Role	Responsibilities
EM Group Leads	• Ensure that the works under their control are planned and undertaken in such a way as to give utmost regard to health & safety, as well as fulfilling the requirements. • Ensure that risk assessments and method statements are produced for the works under their control and the details of these are communicated to the relevant persons. • As part of the risk assessment process ensure that members of the project management team, who will be responsible for taking the preventative and protective measures associated with the project operations, are competent and aware of their duties and responsibilities. • To arrange for all levels of staff under their immediate control to receive, where necessary, adequate and appropriate training in H&S matters. • When appointed ensure that Contractors and subcontractors works in accordance to the site rules and their approved safety statements for their proposed works, and monitor their effectiveness and compliance. • Monitor safety, health and safety performance in their areas / sections and will carry out regular site area / section inspections. • Ensure that persons who operate plant, machinery and equipment are competent, adequately trained, and possess a training card as may be required. • Ensure that personal protective equipment is used. • In conjunction with the EM HSE Manager, report, record and investigate all accidents and dangerous occurrences and ensure that remedial measures are taken to avoid recurrence. • Undertake weekly inspections of their workplaces. • Ensure that contraventions, within their work area / section of responsibility, noted and any safety inspection reports are promptly performed. • Provide an interest in and enthusiasm for H&S matters and will set a good personal example.
HSE Engineers /Supervisors	• Continuously be aware of changing site conditions such that a rapid response can be made in the event of an accident/incident on site. • Be aware of any dangerous substances in use at the site, and, be aware of actions required in case of contact with dangerous substances. • To attend to the toolbox talks. • To assist the workforce in assessment and elimination of risks. • To inspect unsafe conditions and acts.

Role	Responsibilities
	• To warn and report persons who do not comply with H&S instructions. • To maintain traffic order in relation to the vehicles, equipment and employees. • To have delivered personal protective equipment to employees, to assure their usage and keep related records. • To have placed the necessary and proper H&S warning signs at certain locations of the workplace. • Actively to give necessary training to personnel in time and accordance with H&S training schedule. • Record given training to on data log daily and report to HSE Manager weekly. • Record information of individual that belongs to personnel taking training. (name, surname, date, training name, company name) • Support the HSE Manager in the practical implementation of the HSMP and supporting documents • Attend H&S meetings, with subcontractors, supervisors and workers as necessary • Enhance and participate in H&S communication campaigns.
EM Engineer, Supervisor, Foreman	• To take all reasonable measures to ensure the health and safety of the workforce, no damage to equipment or materials. • To implement the project HSMP and all relevant H&S procedures. • To comply with and carry out the site-specific H&S instructions. • To make suggestions regarding H&S. • To attend the H&S Meetings at the workplace as required. • To report all hazardous conditions, accidents, incidents, non-conformances etc. to project H&S management. • To monitor employees for compliance with site-specific H&S instructions. • To ensure the hazards associated with the work that they are supervising have been identified and appropriate controls have been implemented prior to the start of work. • To stop the job if it is unsafe.
All EM Employees	• To stop the job if it is unsafe. • To take all reasonable measures to ensure health and safety of the workforce, no damage to equipment or materials and no damage to the environment. • To observe and comply with all H&S rules and regulations.

Role	Responsibilities
	• To report all unsafe acts and conditions to the supervisors. • To report all accidents, incidents and reportable cases to the supervisors. • To report all equipment damage to related supervisors. • To help to maintain a safe and clean work area. • To report all near misses. • Take reasonable care for his own health and safety or that of those who could be affected by his acts and omissions. • Co-operate with the management on matters of health and safety. Use plant, machinery, tools and any articles or materials in accordance with training and instructions. • Make proper use of any issued personal protective equipment. • Accept reasonable offers of assessment and training, particularly in relation to safe pass and construction skills certification. • Behave in a reasonable manner and set a good personal example.

5.0 HEALTH AND SAFETY MANAGEMENT

5.1 EASTERN MINING HSE POLICY STATEMENT

Occupational Health, Safety and Environment Management System (HSE MS) has been established in accordance with ISO 14001 and ISO 45001 to ensure a sound operation of all activities and services delivered by EM and affiliates.

Health and Safety Policy

https://www.adriaticmetals.com/downloads/corp-governance-files-/health-safety-policy_final.pdf

INTRODUCTION

Adriatic Metals is committed as a priority to protecting the safety, occupational health and welfare of our workforce. We strive to achieve Zero Harm and to eliminate the potential for accidents and injury in the workplace. We will also ensure that our operations do not impact negatively on the safety or health of associated communities.

PRINCIPLES

Adriatic Metals is committed to:

§ complying with all applicable legal requirements and other rules, codes and standards to which we subscribe (and which will be identified on our website);

§ providing a workplace that is safe, secure and does not adversely affect the health of our people, business partners, and the communities where we operate;

§ creating a company-wide culture of care and trust, where managers lead by example and demonstrate visible, felt leadership;

§ continually improving health and safety performance through appropriate systems, leadership, training and use of personal protective equipment and the implementation of fit-for-purpose occupational health and safety procedures, objectives and measurable targets;

§ monitoring the health of our workforce on an ongoing basis, continually identifying, assessing and avoiding or minimising occupational health and safety risks, and assessing our health and safety protocols, and strengthening them where gaps are identified;

§ ensuring that where significant incidents occur that impact adversely upon safety and health, including high potential/near misses, an investigation is undertaken to identify root causes and to ensure that learning points are identified and disseminated so as to prevent repeats; and

§ engaging with internal and external stakeholders, including employee representatives, on health and safety-related issues in an open, collaborative and transparent manner.Adriatic Metals employees play an active role in achieving these commitments by:

§ beginning every task by first considering health and safety risks, and continually taking reasonable care of the safety and health of themselves and their colleagues;

§ exercising their right to a safe working environment by withdrawing from and reporting situations that are unhealthy or dangerous to them or their colleagues; and

§ complying with documented health and safety management systems, standards and procedures.

APPLICATION

Responsibility for the application of this Policy rests with, but is not limited to, all Company employees and contractors engaged in these activities under the Company's operational control. Every employee shares a responsibility for compliance with this policy. The Company's managers are responsible for promoting and ensuring compliance with the Policy and any relevant business unit or departmental policies.

MONITORING AND REVIEW The Board will monitor the content, effectiveness and implementation of this Health and Safety Policy on a regular basis. There may also be independent reviews undertaken from time to time. Any findings, updates or improvements identified will be addressed as soon as possible. Material breaches of this Health and Safety Policy will be reported to the Company's Board of Directors (Board) and the ESG Committee of the Board. The ESG Committee will review incident reports and recommended follow-up actions. Stakeholders are invited to comment on this Health and

Safety Policy and suggest ways in which it may be improved. Comments, suggestions and queries should be addressed to the Board.

Approved by the Company's Board of Directors on 6th November 2020. Adopted by the Company on 9th November 2020.

5.2 HEALTH and SAFETY APPROACH

5.2.1. Health and Safety Principles

EM recognizes that H&S management is a line management responsibility, the principles of which employees, Contractors and subcontractors will fully comply and management shall both lead the workforce and control worksites.

The following sets out the H&S principles to be applied:

All work will be undertaken in a responsible manner where decisions will be made with full consideration of health and safety, economic and social factors.

EM will give high priority to the management of health and safety. Everyone who works for project, anywhere, has the responsibility of H&S. Good H&S performance and the health and safety of everyone who works for the project are critical to the success of the business. The project goals are;

- No harm to any person
- No harm to property, for the duration of the project.

EM requires all senior management to take direct management responsibility for the H&S performance of all the workers at all sites.

5.2.2. No Harm to People

As a principle, there is a clear affirmation that accidents and harm to people will be unacceptable in the Project operational culture. Project target is zero incidents and accidents to achieve the objective of no harm to people. It is recognized that incidents will occur, and any incidents that do occur will be investigated by the safety management and a report issued but the objective is clear, no harm to people and to prevent recurrence.

It is the intention of EM to ensure that H&S is given due regarding on the contract. To achieve this, the cooperation of all Contractors and subcontractors is essential together with good planning, adopting a risk assessment approach to identify hazard and eliminate the risks.

EM shall co-ordinate various Contractors and subcontractors working on the site development. Contractors and Subcontractors are expected to comply with current legal requirements, good working practices and rules and regulations set by EM, which should be brought to the attention of employees and relevant parties working on site.

With regards to accidents, incidents or near misses, H&S Site Representative shall be informed and if the incident is reportable to the government authority, a copy of the report form must be provided to the EM Project Manager. Further guidance can be found in the Section 7.0: Verification and Monitoring - Incident Investigation and Reporting in this document.

It is required by the Contractors and subcontractors and their employees to assist in implementing this plan and to ensure a safe and healthy site for all personnel and visitors. If any employee witnesses an unsafe situation or finds themselves in a position of danger, they should immediately report it to their supervisor or to the site management.

By taking into consideration of these general objectives, our target is:

- Zero accident,
- No harm to any person,
- No damage to property,
- Fully compliance with applicable regulations

5.2.3. Health and Safety Management Strategy

The focus is on reducing all H&S risks but not only on a day-to-day basis but especially those that are recognized high risk, and are known to have caused serious injury in the past. Previous lessons learnt from past projects of EM and best practices will be taken into consideration when carrying out risk analysis exercises such as risk assessments, toolbox talks, job safety analysis etc.

These are in turn based on the HSMP and procedures of EM and its Contractors and subcontractors are expected to use as a model for the execution of the works.

EM notes that HSMP for Contractors and subcontractors must include mandatory requirements to be followed at all work sites and be in line with prepared Health and Safety Management System (H&S MS) explained in below Section 6.3. Contractors and Subcontractors shall ensure that all his workforce is trained according to this plan, understood and followed at all times.

All H&S crews on the project are to be approved by EM HSE Manager based on competency (experience, education, certificate etc.) At minimum, Contractors and subcontractor's full time HSE personnel shall have 3 years construction field experience and a Certificate approved by the appropriate Bosnia & Herzegovina Ministry. Contractors and Subcontractors shall provide

a full time H&S professional if number of employees is less than 10, 2 H&S professionals if > 20 but <50. An additional H&S professional is required for every other 50 people. In case of safety issues (poor safety results, high risks, night works etc.) additional resources can be requested from the subcontractor. Where required, EM will also provide more resources to effectively manage HSE on site.

All HSE site personnel are equipped with or made accessible to phone or hand held radio, computers, internet, printer.

Suitable communication system between all H&S crews on the project is to be provided by adequate number of devices (e.g. radio system or other equivalent system).

In order to have a better control on site, EM will implement a zoning system throughout the project. Site will be divided in zones. Each zone will be assigned to a manager/officer from EM who will be recognized as responsible of H&S program implementation in his area. Regular H&S inspections will be conducted in each zone.

In general, no Contractor or subcontractor work will start unless operation supervisors are provided and supervising the work in the site. Where high risk activities are carried out, subcontractor's H&S officer shall be closely monitoring the activity.

EM will implement a reward and recognition program which is transparent on application and based on trusted data to encourage good H&S performances and practices.

5.2.4. Health and Safety Management System

EM will adopt a systematic and pro-active management approach and implement an H&S policy that addresses H&S objectives and strategy specifically:

- Personnel development, skills training and competency
- Minimization of losses
- Management control
- Standards
- Method of implementation
- Promoting a positive H&S culture
- Auditing and assessment
- Continuous improvement

A policy statement signed by the top management is in place and arrangements will be made to communicate it to all personnel at site by means of printed material, H&S inductions prior

to commencement of the works. EM will manage the core requirements for the performance of safe work by:

- Positive identification and certification of all plant and equipment and powered tools on the work site.
- Identification, training, supervision and support of all workforce personnel on the work site.
- Identification, training, supervision and support of all other authorized personnel on the work site including visitors.

EM will typically contain plan & procedures that address but not limited with the key H&S processes in the following subjects:

- Traffic Management
- Fire Prevention & Protection
- Site Security & Security Emergency Response
- Excavation
- Working at Height
- Personal Protective Equipment (PPE)
- Confined Space
- Permit To Work (PTW)
- Temporary Electricity
- Manual Handling
- Control of Substances Hazardous to Health
- Lock Out Tag Out (LOTO) for Construction
- H&S Disciplinary
- Risk Assessment
- H&S Training
- Incident Investigation and Reporting
- HSE Incentive Scheme

5.3 HEALTH and SAFETY KEY PERFORMANCE INDICATORS (KPIs)

EM will develop Key Performance Indicators (KPIs) to evaluate the performance of project H&S status. The proposed KPIs will be used to measure and report on H&S performance and will be based on the subject areas listed below, but will not necessarily be limited to the examples

given. KPIs may be linked or shared with the H&S incentives developed by EM as detailed above.

The Contractor's and subcontractors' performance against the agreed KPIs will be recorded and monitored by EM.

Training

- H&S Induction Training: is given to all new employees to familiarize them with the general rules and H&S practices, major provisions of the local legislation, rules of routine operations, personnel conduct requirements, EM property and workshops, harmful factors and process hazards information and other issues.
- Refresher Training: is provided every year for individual in order to keep personnel aware of HSMP and local legislations.
- Tool Box Talks: Toolbox Talks areshort meetings performed with workforce by supervisor or foreman regarding H&S topics such as working at height, manual handling etc. Number of Toolbox Talk meetings held and attendees will be recorded. TBT shall be conducted on a weekly basis.
- Specific Trainings (including practical training): is given to personnel who are required for their duty or task before commencement to work. Hours of trainings given will be recorded and used as a KPI parameter for H&S performance.

Audits, Inspections, Walk Downs and Observations

A number of audits, inspections, walk downs and observations will be the other KPI Parameters. Scope and implementation of these parameters are clearly described in section A-6g of this document

Incidents (Near Miss, Dangerous Occurrence, and Accidents)

All incidents will be reported and recorded which will also be a performance indicator of the H&S management of the project. Reporting of following will be performance indicators of the H&S management on site.

- Fatality
- Lost Time Injury
- Restricted Work Case
- Medical Treatment Case
- First Aid Case
- Dangerous Occurrence
- Total Recordable Injury Rate

- Lost Time Injury Rate

All those above items are clearly defined in Incident Investigation and Reporting Procedure.

ITEM	TARGET	CALCULATION
Fatality	0	0
LTIFR	1	No of LTI*200.000)/Total Man Hours
TRIFR	3	No of Total Recordable Incident *200.000)/Total Man Hours
H&S Induction	100%	Total Induction Training given Employee / Total Employee Number
Refresher Training	100%	Total Refresher Training given Employee / Number of the Employee who completed one year in project
Sub-Contractor Audits	100% (2 per month)	Performed Audit / 2
H&S Walk downs	52	Performed Walk down / week number of year
Training Hours	16hr	Per Person/Year

HS KPI is listed in the table but is not limited to above parameters. KPI's parameters can be updated and revised if required.

6.0 All MITIGATION MEASURES

The following mitigation measures will be adopted in order to control health and safety related impacts:

6.1 HAZARD IDENTIFICATION, RISK ASSESSMENT and MANAGEMENT

6.1.1. General

Beyond its necessity from an H&S perspective, it is a statutory requirement that employers to undertake a risk assessment of every task which is likely to be undertaken in the course of their business. Therefore, in EM projects all risk assessments will be carried out, documented and

maintained. All risks will be periodically reviewed to ensure that the hazards and risks of the operation have not changed. Also risk assessment shall be reviewed whenever systems of work or outside factors are changed.

6.1.2. Risk Assessment Procedure

Risk Assessment Procedure will be in place and all risk assessments are going to be created according to the procedure, related execution plan, method statements or similar. All those documents are to be created by competent people at construction department and shall be given to H&S department. HSE Manager is going to establish a committee to write generic risk assessments. The members of the committee are HSE Manager or his/her nominee, related group chief, related foreman or supervisor and at least one worker from the crew. All activity performed on site require a specific Risk Assessment. Risk assessment is filled in by the technical team leader of involved workers and approved by both H&S officers from subcontractor and EM. For specific high risks activities (e.g. working at height, hot works, confined spaces, heavy lifting, excavation, LOTO, X ray, explosive atmospheres (ATEX)), a permit to work will complete the risk assessment. Details of permit to work and works requiring work permit will be defined in Permit to Work procedure.

Systematic approach shall be followed during the risk assessment process, which is listed below:

- Identify the hazards
- Identify the affected parties
- Identify the risks, existing controls and their probability/severity
- Identify what precautions should be taken
- Record the decisions
- Publicize findings
- Review

All method statements and risk assessments shall be reviewed annually. Also if there will be any changes at working conditions, outside factors, equipment, technology or after any incident all related method statements and risk assessments shall be reviewed.

All conditions and control measures identified on risk assessment / work permit shall be implemented prior to commencement of the job and maintained during the whole duration of the task, under control of EM technical supervisor. During the task, the risk assessment and potential associated work permit are available in the field and owned by involved workers team leader. At the beginning of each half day, a Last Minute Risk Analysis which is mainly a pre-start inspection rather than a formal risk assessment is performed by the team leader and H&S

Department to check that there is no change in working conditions compared to risk assessment or work permit.

The following subsections show examples of items for which risk assessment and method statements will be required. In general, all activities need risk assessments. Therefore the level of risk involved varies and is not necessarily limited with the listed activities, underlining the need to determine levels of risk for all activities to impose appropriate management controls, in particular the need for an effective Permit to Work system.

Other risk assessments and method statements may and will be necessary to manage all identified risks and hazards after break down of the work scope.

Examples of Risk Assessments:

- Access roads
- Emergency response
- Excavation
- Fire prevention and fire fighting
- Heavy lifting, handling and cranes
- Radiography
- Scaffolding
- Storage of fuels and chemicals
- Welding and cutting
- Working at height
- Working in confined spaces
- Working over or near water
- Noise control
- Electrical works
- Portable tools
- Vehicles

All workers received the risk assessment training and communication have to sign the training or tool box talk record as evidence that they have been inducted about risks related to the job by their team leader during a pre task meeting, training or toolbox talk. In addition to that all risk assessments shall be communicated to workers and made available for access when required. Such trainings and signature recordings will be done in a safe place closed to the construction area.

6.1.3. Managing Subcontractors

Managing Contractors and subcontractors on construction projects add another complication to risk management at the site. Effective management of subcontractor's H&S performance can sometimes be overlooked since the Contractors and subcontractors:

- may only be on site for a short time and are wrongly thought to pose little or no risk.
- may be wrongly considered as solely responsible for their own actions and consequences.
- may work in isolation from the main project activities.
- risk exposure may not be considered as part of the overall site risks.
- may not know what their responsibilities are in risk management.
- may not be committed to risk controls.
- may take unnecessary risks, to cut costs and increase profits.

EM is aware of the fact that the risk management process has to be efficiently managed so effective strategies are in place to eliminate or minimize risk. It is the EM responsibility to provide effective safety management at the work site. For that purpose EM will make sure that:

- their own people are working safely,
- their Contractors and subcontractors are also working safely.

Keeping control over Contractors and subcontractors involves three main steps for EM:

- EM will select subcontractors who:
    - can show they are competent to do the job
    - have demonstrated risk treatment measures.
- EM will only allow subcontractors on site who:
    - have undertaken H&S induction training
    - have submitted method statements of their scope of work.
- EM will monitor Contractor's and subcontractors' risk management processes to ensure they are:
    - doing things according to the EM HSMP, and
    - working to their safe work method statements.

EM H&S Plan shall be followed by all subcontractors. This plan is an integral part of the contracting/subcontracting agreement. This HSMP should be used as a guidance document during all activities related with the project.

EM will make sure at the tendering period of any Contractor or subcontracting work that the latest version of this HSMP is given to the bidder and be a part of the agreement. If changes are made to the HSMP, all subcontractors will officially receive the updated version.

In addition to the HSMP, EM will make sure that the Contractor and subcontractor has all necessary safe work method statements for the work the subcontractor will be doing before a subcontractor starts work.

EM will monitor the performance of subcontractors to make sure they are following their safe work method statements and complying with this plan, laws and regulations. If required EM will take action according to the Contractor or subcontractor agreement where Contractors or subcontractors aren't following their safe work method statements and complying with the requirements of this plan.

EM will require the Contractors and subcontractors have adequate number of H&S professionals on site as described in this plan working in close coordination with EM H&S team. At the kick-off meeting with the Contractors and subcontractors EM will also point out the importance to the Contractors and/or subcontractors to stop work where there is an immediate risk to health and safety until the situation is fixed to demonstrate the H&S dedication of the project.

6.2 PEOPLE, TRAINING and BEHAVIOURS

6.2.1. General

The behaviour of people at all levels of the project is critical to its success and to the achievement of the H&S goals. It is therefore essential that all personnel are carefully selected and trained, and that their skills and competencies are regularly assessed.

It is also essential that good H&S performance is encouraged and rewarded, through the Key Performance Indicators (KPIs) and incentives that will be developed by EM.

6.2.2. Behavioural Change

EM will implement H&S programmes and training that engage managers, supervisors and personnel in behavioural change and improved safety performance.

The behavioural change programme will develop awareness of risk and encourage teams and individuals to build an interdependent H&S culture with personal and team commitment to improving safety.

6.2.2. Drugs, Alcohol and Smoking

It is the policy of EM to maintain a work environment free from the influence of alcohol and other drug abuse. Accordingly, EM prohibits the consumption, use or influence of alcohol during working hours and prohibits the use of illicit drugs at any times. This includes to/from and during work or when conducting business on behalf of EM, Contractors' and subcontractors' employees have to be free from alcohol, illicit drugs and controlled substances. Contractors and Subcontractors will maintain a similar policy regarding its own premises during working hours.

In the event that EM provides accommodation for use by the Contractors' or subcontractors' employees, any alcohol found on the Contractors or Subcontractors personnel for the consumption in periods of social activity during rest periods at EM camp sites will be confiscated. Illicit drugs and controlled substances will never be allowed by EM.

EM will have a programme for drug and alcohol abuse prevention and random testing.

EM will enforce programmes that will ensure the workforce under his management, Contractors, subcontractors or visitors are free from the effects of alcohol or drugs during work periods, mid-day breaks and travel journeys to and from the worksite.

Any incident involving illicit drugs or controlled substances will be brought to the attention of the appropriate law enforcement agency.

EM will immediately remove personnel violating the policy from the premises.

Random alcohol testing may be applied for all personnel but especially operators and drivers of heavy vehicles (e.g. cranes, excavators etc.)

EM, Contractors and subcontractors will note the following important requirements for the site, applicable to all personnel:

- Smoking, weapons and drug policies are to be posted on site.
- No smoking in the work sites at all times. "No smoking" signs will be respected at all times. Designated smoking areas will be addressed for the site, which shall be away from the any gas exposure and other hazardous areas. Designated smoking areas are to be protected from rain and sun and equipped with extinguishers and ashtrays.
- No smoking within project vehicles.

Individual violators of the above smoking rules may be subject to disciplinary action including immediate dismissal.

6.2.3. Health and Safety Trainings

H&S trainings will be provided by EM and specifically to be structured for line management and workers. The purpose of these training is to ensure full understanding of the H&S requirements and the practical application of HSMP. No one will be allowed to enter the site without obligatory H&S Induction or at least visitor induction. Visitor induction is a training which can be applied for who are not considered as direct site workforce and stay at the site for short term.

Refresher training for employees in H&S shall be arranged at least every year. Refresher trainings shall be given to workers in below conditions other than regular refresher trainings:

- When workplace and organization is changed.
- When the equipment are changed.
- When external conditions are majorly changed.
- When method and technology is changed.
- When repeated violations are spotted that it is clear the person didn't understand the H&S rules.

All personnel will undergo a mandatory induction course regarding H&S, emergency response and relevant procedures. Attendance will be documented and records shall be kept at H&S office and a copy to be forwarded to the Employer upon request.

Training matrix is going to be generated by EM HSE Manager to define which people are going to attend which training according to their responsibilities and proficiencies. Based on the training matrix, specific training are done on site (in addition with the external trainings/third party certificates) to ensure that people understand the requirements of the HSMP. Examples of the trainings are listed below:

- H&S Induction
- Risk Assessment Training
- Working at Height Training
- Lifting and Rigging Training
- Scaffolding Training
- Working with Chemicals Training
- Accident & Incident Investigation Training
- Fire Prevention and Protection Training
- Electrical Safety Training
- First Aid Training

- Confined Space Training
- LOTO Training
- PTW Training etc.

Specific trainings will be provided or outsourced by EM either in-house or from a third party or agencies which authorized to give relevant certificates depending on the local legislations and EM H&S standards.

Qualifications of the workers are to be indicated on helmets, badges or equivalent system easily accessible on site. The badge is provided to a worker if he has succeeded in the induction test and if all the necessary documentation (medical certificate, driving licenses, training.) comply with his function.

6.3 HEALTH AND SAFETY STANDARDS

This specification sets out specific H&S rules, standards and requirements for the project. The rules represent the minimum requirements for EM, Contractors and subcontractor staff to ensure that safety is an integral part of each task performed.

This specification covers detailed H&S issues that in the past have found to be essential to manage effectively in reducing the hazards and risks associated with the execution of construction work scope in country.

The issues addressed are discussed as a series of specific requirements placed on the EM, Contractors and its subcontractors and other third parties within the overall project goals of 'Zero accidents, No harm to personnel and no damage to Property or the Environment.'

6.3.1. Health and Safety Performance Standards

All project involved parties will aim to achieve the following H&S performance standards throughout the contract period:

- Zero fatalities
- Zero Lost Time Injury (LTI)
- Zero vehicle accidents
- Compliance with the HSMP at contract and project level
- No risk to or interference with local residents and enterprises

6.3.2. Working at Height

6.3.2.1 Introduction

Anyone who is likely to fall from any height shall be protected. Falls from height account for almost 25% of deaths at work each year and most accidents involving falls could have been prevented if the right equipment had been provided and properly used. Ladders are a frequent cause of accidents. They should not be used as a working platform. They are only for access. All falls need to be prevented, where anyone who is likely to fall more than 1.8 meters calls working at height in the project.

6.3.2.2 Preventing Falls

- Plan all instances of working at height through the use of risk assessment and method statements.
- Think about where the work is to be done.
- Where possible use an existing structure, which will allow safe access and provide a safe working platform. Where this is not possible, a safe working platform will need to be provided.
- Remember that this may give access to dangerous parts of machinery so then the necessary precautions will have to be taken and controls will have to be put in place.
- Consider any lifting and handling requirements needed to carry out the work.
- Be aware and prevent possible electric shock dangers that may initiate accidents.

6.3.2.3 Main Rules When Working at Height

- First, as a part of the planning of the work, carry out a Risk Assessment.
- Plan to do as much of the work as possible at low level.
- Do not work at height unless it is absolutely unavoidable.
- Only full body harnesses can be used with double lanyard and shock absorber. Everyone will comply with 100% tie-off rule. Retractable type fall arrestors shall be used for loading/unloading of containers.
- All harnesses must have inventory number and quarterly inspected and documented.
- Life lines and anchor points must be checked daily to ensure they are suitable to use.
- Provide a secure platform which will:
    - Be securely footed on stable ground
    - Support the weight of the personnel and equipment to be used
    - Provide a stable access and will not overturn
    - Be secured to an existing structure, where necessary and wherever possible

- Take account of the gradient of the ground, especially where mobile platforms are used.
- Provide guard rails to the platform of mobile platforms and personnel on them to wear safety harnesses.
- Collective hard fall protection is installed where there is a risk of fall of 50 cm. Suitable guardrails are placed where necessary, with top and mid rail and toe board included, are required on all elevated walkways and work areas and around floor openings.
- Provide barriers on open edges, holes and openings in the platform floors, the edges of roofs and working areas.
- All guardrails must be done by 3 parts which are toe board (minimum 15 cm), top rail (at the height of approximately 110 cm) and a mid-rail.

Remember that poor selection, maintenance and care of equipment are the major contributors to accidents when working at height, which is under management's responsibility, rather than an obvious lack of attention to good working practices.

6.3.2.4 Working above Head Height

Persons may normally only work from ladders and steps up to a height of 1.8 m providing that three point rule. Only those persons who have received Fall Protection Training are authorized to work on temporary structures or means of access such as scaffolding and power operated mobile work platforms at heights above 1.8 m.

6.3.2.5 Mobile Work Platforms

No power operated work platforms will be brought on site without the approval of HSE Manager and only trained; competent persons will be permitted to operate such equipment. Harnesses will be worn and attached by all persons in Mobile Work Platforms at all times.

6.3.2.6 Scaffolding

No one may order or bring scaffolding on site without authorization from HSE Manager.

All scaffolds shall be tagged by scaffold supervisors of Contractors and subcontractors and EM scaffold supervisor will check all scaffolds on the site. Tags and meanings are listed below;

Red Tag : Scaffold can't be used.

Green Tag : Scaffold is ready to use.

If there is a red tag on the scaffold signed by EM, only EM scaffold supervisor can change the tag after the notification of the subcontractor. EM Project Manager will be responsible for the provision of recognized scaffolding inspection services.

Main rules of scaffolding are listed below:

- All scaffold components shall be done by same manufacturer.
- Erection of scaffolds should be done according with developed method statement.
- All scaffold components shall be capable of supporting 4 times the maximum intended load.
- Scaffolds to be erected by competent and certified person.
- All working at height rules must be applied to erectors during erection and dismantling of scaffolds.
- All scaffolds must be registered in log book after inspection and acceptance by scaffold supervisor. If the height of the scaffold is higher than 4 meters, acceptance act must be prepared and the scaffold must be tied to the building or additional outriggers must be added.
- Inspection journal shall be filled once in 10 days.
- To be verified that scaffolds are either under the coverage of site's general lightening protection or protected locally. There will be no activities on the scaffolds during thunderstorms and if there is a wind which equal or more than 15 m/sec. A wind speed meter will be available on site for instant measuring purposes.
- Alteration of scaffolds to be prohibited via welding, burning, bending etc.
- Scaffolds to be erected on secure base with mudsills/base plates used on all surfaces. A solid wooden plank of not less than 5 cm thickness should be under each pair of cross direction posts of scaffolds.
- Scaffold platforms to be kept free from slippery conditions (including ice & snow), trash and debris. Materials on scaffolds and runways to be stored in quantities that do not exceed the daily amount to be used.
- Scaffold planks should extend over supports at least 15 cm but no more than 30 cm. Where scaffold planks are abutted both planks to be supported and the overlaps to be at 30 cm minimum. Permissible clearance between planks is not more than 5 mm.
- Decking to be made of flame-retardant coating. Scaffolds work platforms to be fully decked with scaffold grade boards in good condition, and at least 45 cm wide.
- All platforms to be equipped with handrails (1.1 m), toe boards (0.15 m) and mid rails (0.45 m from toe board and guardrail).
- Openings near accesses to different levels shall be protected by guardrails.
- Safety feet/shoes to be used for portable metal ladders if used for access to scaffolds platforms.

- If higher than 5 m with canting angle more than 75 degrees, ladders to be equipped with arched guards, if canting angle between 70 and 75 degrees ladders to be equipped with guardrails from both side (0.9-1.4 m vertical height) starting from 5 m height.
- Stair towers are to be at least 45 cm wide and constructed with handrails, landings at each level, slip resistant treads, and in a manner which does not present a hazard.

6.3.2.7 Ladder Safety

- All ladders shall be inspected ad tagged in a quarterly basis.
- Side rail must extend 1.05 meters above the upper landing.
- Ladders must be secured, tied of.
- Slip resistant ladder shall be used in slippery surfaces.
- When employee is ascending he shall face the ladder.
- Employees shall not carry materials which interfere with climbing.
- Welded and handmade ladders can't be used.

6.3.2.8 Floor Openings, Holes and Edges

- Approved guardrails or covers will protect floor openings or hole.
- If covers are used, they will be strong enough to support the loads to be imposed upon them clearly labelled "Floor Opening, Do Not Remove" and will be secured to prevent accidental displacement.
- An approved barricade secured to prevent accidental displacement will guard the open edges of all floors.
- Ladder way floor openings or platforms will be guarded by standard railings with toe boards on all exposed sides, except at entrance to opening where a gate should be provided or so arranged that a person cannot walk directly into the opening.
- Fencing will guard hatchways and floor openings and toe boards on exposed sides when the hole is open and a cover of standard strength used when the hole is not in use.
- If the openings are not used, they will be covered with materials of adequate strength.
- Where doors or gates open directly on to a stairway, a platform will be provided and the swing of the door will not reduce the effective width of the platform to less than 0.5 meters.

6.3.2.9 Wall Openings

Wall openings, from which there is a drop of more than 0.5 meter or where a hazard exists, will be guarded as follows:

- When the height and location of the opening in relation to the work surface is such that a standard rail and mid-rail will effectively reduce the danger of falling, both will be provided.
- A standard toe board or an enclosing screen will protect the bottom of the wall opening.
- An extension platform outside a wall opening, onto which materials can be hoisted for further handling, will have side rails or equivalent guards. One side of the extension platform may have removable railings in order to facilitate handling materials.

6.3.3. Personal Protective Equipment (PPE)

Personal Protective Equipment (PPE) is the last resort in the hierarchy of controls as it only protects the person wearing it. This section only gives an introduction to personal protective equipment. Therefore for further guidance, EM PPE Procedure shall be looked for and adhered to by all personnel in the project.

Prior to commencing any work at the project, EM will ensure that all workers on the site have all the necessary protective clothing and protective equipment to safely perform the work.

EM will provide PPE for employees and visitors and will ensure that subcontractors do the same in accordance with the related activities. PPE will be readily available and procedures for its issue will be established. Effective protection is only achieved by suitable PPE, correctly fitted, maintained and properly used.

Helmets, safety boots with steel toe or protected by other means according to the relevant standard, safety glasses and high visibility jackets will be provided and will be mandatory attire on worksites for all personnel, subcontractor of EM, Employer and visitors. Ear protection, face visors / goggles, dust masks and respiratory equipment and other equipment must be made available if risk controls require doing so.

The selection of suitable PPE must be based on an assessment of significant/unacceptable risks, which cannot be controlled by other means, such as engineering controls and safe systems of work.

The provision of all necessary protective clothing and protective equipment will be the sole responsibility of subcontractor.

Where PPE is required, personnel must wear as minimum:

- Safety-toed footgear in compliance with the CE standard
- Hard hats in compliance with the CE standard, colour coded according to KSE PPE Procedure

- Safety glasses with side shields in compliance with the CE standard
- Adequate coveralls. Where there is a fire hazard, coveralls will be worn and be fire retardant.
- High visibility vest, colour coded according to PPE Procedure.

Wearing of sleeveless shirts whilst in any work area will be prohibited.

Information, instruction and training needs be provided to employees on the fit, use, maintenance and limitations of PPE. It is the responsibility of the Project Manager to arrange this.

6.3.4. Confined Spaces

Confined space means any enclosed or partially enclosed space or trench having restricted access or egress, a potential for a hazardous atmosphere and which due to its nature may form a trap and become a life threatening environment.

Such spaces are usually not designed or intended for human occupancy. They include large pipelines, tanks, vessels, separators, silos, ducts, sewers, pits, holes, flues, manholes and voids. They also include any space in which dangerous contaminants can accumulate and ventilation is restricted e.g. excavations, trenches (normally deeper than 1.2 meters), sumps, draw pits and culverts and any other poorly ventilated areas.

Only trained personnel should work in confined spaces and HSMP and Confined Space Entry Procedure shall strictly be adhered to.

6.3.4.1 Hazards

Below list identifies the hazards in confined spaces:

- Toxic substances, hydrogen sulphide, benzene and hydrocarbon gases
- Flammable gases, above 10% LEL, or 0% LEL if hot work is required
- Lack of oxygen: below 21% of volume
- Nitrogen asphyxiation
- Oxygen enriched atmosphere: greater than 23% by volume
- Electrical shock or ignition of flammable gases from electrical equipment/tools
- Injury from mechanical equipment not isolated
- Bodily injury from direct contact with corrosives or irritants

6.3.4.2 Controls

- There will be no work in confined spaces without a valid work permit. If more than one work which requires other work permits such as working at height in a confined space, hot work in a confined space or any other high risk activity, each work's procedure will be followed together with confined space entry procedure.
- Risk assessment and emergency evacuation plan are required prior to entry into confined space. These documents shall be prepared by subcontractor and approved by EM Site Management.
- All confined spaces must be posted in all applicable languages whether entrance is allowed or not.
- Authorized Gas Tester makes tests for oxygen levels and toxic gases prior to entry and during work duration and these measurements must be recorded.
- Buddy system will apply: person(s) to look-out for each other.
- Dedicated 'Safety Watcher', will always be present when the space is occupied and will be located outside the confined space, who is able to immediately call for assistance and who will inspect and monitor the confined space for the presence of gases and other hazards. e.g. potential trench collapse due to excessive ground water.
- The person entering the confined space will be attached to a lifeline.
- If any of the listed hazards are present, entry is not permitted.
- Compressed gases are prohibited from being inside any confined spaces.
- Where combustible gas or vapors are clearly below 10% LEL, entry into confined space cannot be made unless the team is trained in confined space entry, firefighting, first aid, self-contained breathing apparatus and has the necessary equipment.
- Before entering an excavation, either the excavation sides must be graded to angle-of-repose or appropriate shoring is installed to prevent collapse of earthen walls.

6.3.5. Permit to Work (PTW)

EM will operate an approved Permit to Work (PTW) System to control and manage specific hazards during the course of the work. The purpose of such a system is to achieve a safe working environment by providing management control over the various activities that may have potential for hazard.

The system requires the involvement of an appointed competent and responsible persons as well as the application of safety measures in a controlled sequence. Further, a Permit to Work system ensures that the responsibility and accountability for safe working practice is passed in a logical sequence to those responsible for the work being carried out and ensures that adequate safeguards are provided.

Work permits shall be issued to a direct works manager (foreman, etc.) by a person as to be authorized by an order of the head of organization. Prior to the works commencement the works manager shall give works safety training to the workers with this to be registered in the Permit to Work.

During the execution of the work on site, work interfaces and interactions between different work teams and contractors will be managed with the simultaneous operation meetings. This simultaneous operation shall be performed with the approving authority approval. Simultaneous Operations (SIMOPS) are defined as any two or more sets of activities carried out concurrently by different organizations or under different management systems that because of their proximity or other factors could interact adversely with each other. Regular SIMOPS Working Group meetings shall be held where appropriate (e.g. Disciplines during construction, commissioning, etc.)

A work permit is to be issued for a period as required for the works execution. In case of origination, in the course of the works, of dangerous or hazardous factors as not covered by the work permit the works should be ceased and the work permit nullified with subsequent works recommencement only upon issue of a new work permit. A person issuing a work permit shall monitor adherence to works safety requirements as outlined in such work permit.

Other than the activities those defined in the PTW Procedure which will be issued as a separate procedure, Task Risk Assessment, Job Safety Analysis or other applicable hazard identification and management techniques will determine the need for work permits. This risk assessment form must be explained to crew with the acceptance of work permit and copy must be attached to the PTW form. All work permits will be linked to risk assessments and permits will have expiration durations. Details and application will be defined in the Permit to Work Procedure.

Notwithstanding this identification and assessment process, work permits will control such activities as:

- Pressure / Strength and leak testing
- Work in the vicinity of underground services
- Work in the vicinity of overhead lines
- Work in the trench
- Working at Height
- Lifting Operation
- Digging
- Entry to confined spaces
- Heavy, unusual or multiple lifts, or lifts over existing equipment

- Hot works
- Working inside the confined spaces
- All works in LOTO applied areas.
- Removing of gratings, manholes, openings
- Non-routine works.

All mandatory PTW forms must be filled according to the procedure EM site management or H&S department may require any additional permit forms other than that are defined in the PTW procedure during the commencement of the works.

6.3.6. Fire Prevention

6.3.6.1 Introduction

This section provides the guidelines, instructions and requirements pertinent to fire hazard control. EM is responsible for compliance with the fire prevention requirements in his respective areas and in operations by Contractor and/or subcontractor personnel under his supervision. EM will have a Fire Prevention Procedure in place. EM will give instructions to his personnel, Contractors and subcontractors on the use of the fire extinguishers.

6.3.6.2 Objectives

The fire prevention program will be based upon five objectives:

- Prevention of fires
- Early detection
- Control of fire spread
- Extinguish fire promptly
- Plan for prompt and orderly evacuation of personnel to a place of safety

6.3.6.3 Prevention of Fires

The following practices will be observed:

- Regular clean-up of debris
- Regular thorough inspections of the work areas and buildings to detect and eliminate fire hazards or the potential sources of fire
- Safe storage, handling and use of combustible materials

6.3.6.4 Detect and Control of Fires

Detecting fires early would reduce the damage significantly that the fire could give to the surrounding. Therefore all personnel must be constantly alert in detecting fires and any fire shall be treated seriously.

- EM, Contractors and subcontractors will provide enough fire extinguishers of the correct type and size.
- The fire extinguishers will be strategically located.
- Fire extinguishers will be made highly visible.
- Fire extinguishers will be clearly marked on the site drawings.
- All fire equipment will be regularly inspected.

6.3.6.5 Extinguishing the Fire

The extinguishing of fire often involves critical matters of judgment, which are best exercised by trained firefighting personnel. However, it may be necessary to control the fire until trained firefighting personnel can decide on the correct method to extinguish. The level of training to be provided to site firefighting personnel will be dependent on the site principal of either a passive or active response to fire fighting.

6.3.6.5 Fire Reporting

The person discovering a fire will alert all personnel in the immediate vicinity and will immediately thereafter follow the published instructions relative to reporting fires. The emergency phone number for reporting fires will be prominently displayed and advised to site personnel at induction training.

6.3.6.6 Supervision of Fires

When fire occurs, the nearest supervisor will be responsible for all immediate fire suppression or control work until relieved by appointed, authorized personnel. Necessary instructions are going to be given to supervisors at supervisor training.

6.3.6.7 Fire Extinguishers

Each Contractor and subcontractor has a contractual obligation to provide and maintain adequate, easily accessible fire extinguishers on the job site. The Contractor and subcontractor should consult with the local Fire Protection Unit for advice on selection of such equipment. There are three types of fire extinguishers normally found on construction sites: water, carbon dioxide and dry chemical types. Contractor or Subcontractor personnel should be aware of the firefighting equipment available on site and be familiar with its use.

Carbon Dioxide Type Extinguisher

The carbon dioxide (CO_2) type extinguisher is normally used for controlling electrical fires. These fires take place in motors, switch-gear, and so forth and are usually very easily controlled by de-energizing the circuits that supply the power. The advantage of using CO_2 in this particular instance is that it leaves no residue in the mechanisms of the electrical equipment and, therefore, does not further contribute to the damage.

CAUTION: A CO_2 extinguisher should never be used in enclosed areas where people are present, because the gas displaces oxygen from the immediate environment. When the oxygen level in the environment is reduced sufficiently to put out a fire, the oxygen level is also incapable of supporting human life.

Dry Chemical Type Extinguisher

A dry chemical type extinguisher is normally used in controlling Class "B" fires in flammable liquids. A dry chemical extinguisher normally comes in portable 6 kilograms and 9 kilograms sizes. A larger wheeled extinguisher is also available, but is usually found only within petroleum operating areas. Some dry chemical extinguishers today have a powder which is good in controlling Class "A", "B", and "C" fires. This multipurpose ABC powder gives this particular fire extinguisher a good chance of controlling any type of fire involving wood, petroleum liquid or electrical equipment. 6 and 50 kg ABC multipurpose dry powder fire extinguisher will be available in the project.

Pressurized Water

Where a pressurized water system is available on site, the subcontractor is responsible for supplying hoses and nozzles. Since most fires at construction sites involve Class "A" materials, they can be fought with water. Charged water hoses, ready for use, are a necessity.

6.3.6.8 Flammable Liquid Storage

It is required that risks from the indoor storage of Dangerous Substances to be controlled by elimination or by reducing the quantities of such substances in the workplace to a minimum and providing mitigation to protect against foreseeable incidents. It is recognized that for practical purposes where flammable liquids are used, there is likely to be a need for a limited quantity to be stored in the working area. It is the responsibility of the relevant supervisor when carrying out their risk assessment to justify the need to store any particular quantity of flammable liquid within a working area.

6.3.7. Temporary Electricity

Temporary electricity can be classed as one of the most potentially dangerous areas of risk that exists on a construction site. Construction sites present one of the most challenging environments in terms of electrical safety.

Much of the work is done outdoors in all weathers which increase the risk and potential severity of the shock. Sites are constantly changing as the works progresses and construction activities may result in damage in the temporary installations.

During installation works sites are often congested which makes the control of the risk more difficult. There may also be confusion as to which parts of the temporary, existing or new installations are live and which have been made dead. Temporary site distribution systems may be used a wide range of people who often work for different contractors and have different needs and expectations with different awareness of safety.

Hence the effective management of temporary electrics is of great importance and anyone involved in the project should be subject to the same rules and expectations so that any individual at the project is regulated with the same rules. Therefore a procedure named Temporary Electricity Procedure has been developed and attached to this plan for the works covered by the Project where all personnel will have to comply with.

6.3.8. Workshops and Site Operations

6.3.8.1 Introduction

There are many engineering activities and operations involving the use of machine tools and equipment in construction that may pose hazards unless suitable precautions are taken. Authorized competent persons will only carry out all operations covered by this section. Their names will be registered in the appropriate log. It is also important that the right equipment, including personal protective equipment, for the job is selected and purchased and that it is correctly inspected, used and maintained.

6.3.8.2 Machine Tool Safety

Authorized personnel and following suitable training and assessment may only operate machine tools.

All tools shall be inspected regularly. Daily and visual inspection shall be done by the user before shift starts. All maintenances, and regulatory inspections shall be recorded and records shall be ready for inspections during the project.

Approved personal protective equipment will be issued and will always be worn when using machines or portable power tools.

Rotary or reciprocating machinery can be extremely dangerous. Loose clothing, e.g. ties or scarves, will never be worn and long hair will be tied back when working with such machines.

Vibration enters the body from the organ in contact with vibrating equipment which may cause long term health problems. Therefore when using vibrating equipment, effects of vibration should be considered and vibration shall be reduced with appropriate tool selection, use of anti-vibration protective equipment such as gloves, working with short durations and swapping operators. Further guidance shall be sought from H&S department.

6.3.8.3 Hand Tools

Unsafe hand tools or unsafe use of hand tools can result in accidents. The following points should be noted:

- Hand tools will only be used for the purpose for which they are designed: e.g. spanners will not be used as hammers, screwdrivers will not be used as chisels.
- Sharp edged tools will be used carefully and in such a way that should they slip they will not injure the user or others in the vicinity.
- All tools will be kept in a clean, well-maintained condition. Wooden handles will be smooth, splinter free and properly fitted.
- Any tools designed for use with handles, will not be used without them. Handles will not be painted or taped.
- When working above head height or climbing ladders, tools should be carried in toolboxes, pouches or tool belts, to minimize accidents from falling objects.

Hand tools should be inspected prior to use and at regular intervals for defects and repaired or replaced as appropriate.

6.3.8.4 Flame Cutting and Welding

- Only persons who have received formal training and have appropriate certificates of authorization will carry out welding.
- Before use, a competent and authorized person will carry out inspections of all welding equipment.
- In addition, the Welding Supervisor in Site Operations who will maintain records accordingly will carry out formal inspections regularly.

6.3.8.5 Arc Welding – Common Hazards / Precautions

- Welding cables will be connected in an approved manner. There will be no exposed metal parts in any cable or socket connection.
- Welding cables will be in good condition, uniquely identified and inspected quarterly as minimum. Splices/taped joints 3 m. from cable end will be avoided.
- The frame of all arc welding machines is grounded and a ground return cable is used.
- Electrical welders provided with a means of disconnect.
- The grounding cables will be attached to the work piece by means of a clamp. The ground cable will not be attached to equipment or existing installations or apparatus.
- Welding of the ground cables is forbidden. Concrete reinforcing will not be used for grounding purposes.
- Welding equipment will be installed so that the welder can see it during welding activities.
- Welding equipment may not be placed in the path of falling sparks.
- Cables will be kept clear from passageways, ladders and stairs. When exposed to possible damage, suitable covers will protect cables.
- When not in use, diesel welding machines, generators and transformers will be switched off, electrodes are removed.
- Re-fueling operations will be done with the machine turned off.
- Hot electrode holders will not be dipped in water as this may expose the welder to electrical shock.
- Safety goggles must be worn at all times when grinding or welding, welding hoods must attach to hard hats.

6.3.8.6 Gas Welding and Burning - Common Hazards / Precautions

- Welding or cutting torches and hoses will not be connected to cylinders when stored.
- Compressed gas torches are in good condition and lighted with friction devices only and not lighters, matches, or hot work.
- Cylinders will not be placed in containers or buildings.
- When work is stopped and equipment is unattended, all valves at the gas and oxygen cylinders will be closed and cylinder keys removed.
- The hoses will be bled and a check will be made five minutes later for possible pressure build-up.
- Torches will be removed from the hoses prior to putting them into the toolbox. Smoking will not be permitted during this stopping procedure or at any time when welding operations are in progress.

- Special care will be taken during overhead cutting and welding operations to safeguard and prevent falling sparks from starting a fire. If welding is done above/closed to walkways/work areas precautions have been taken to protect equipment and personnel (Fire blankets, barricaded areas, etc.) and are described in risk assessment / hot work permit.
- Fire extinguishers / Fire Wardens will be available and fire blankets will be used for protection.
- When welding or cutting, adequate ventilation must be ensured.
- Hoses will be kept clear from passageways, ladders and stairs. When hoses are exposed to possible damage, they will be properly protected.
- Hoses will be inspected regularly.
- The use of full or empty cylinders as supporting elements for welding activities is forbidden.
- Unprotected eyes and exposed skin are liable to injury from the intense ultra violet light emitted during arc welding. Any person who suspects that he/she has received "weld flash" injuries should contact a first aider immediately for treatment.

The following precautions will be considered prior to commencing operations:

- In accordance with hazardous substances regulations (Control of Substances Hazardous to Health – COSHH, HAZMAT or similar), an assessment of cutting or welding activities will be carried out and necessary precautions taken to reduce the risks from inhalation of hazardous gases and fumes. In confined spaces fume extraction should be used. Where fume extraction is not applicable, respiratory systems shall be used.
- All flammable materials should be cleared away from the area of work and vessels and pipes adequately purged.
- The location of fire extinguishers, hoses etc. will be identified and if necessary, additional extinguishers placed or fire watchers located close to the area of work. Fire watch is provided and maintained for 30 minutes after the work has been completed, when burning or welding around flammables, combustibles or when such materials may be impacted.
- Suitable extinguishers and operational shielding shall be available at the area of works as per the risk assessment.
- Where the risks to personnel or equipment cannot be eliminated fully, a Permit to Work must be obtained and where necessary any additional precautions, specified in the Permit, will be taken before starting work.

- Suitable protective clothing and equipment will be worn at all times by operators and the area of work screened to prevent injuries to adjacent workers or visitors
- The voltage in normal arc welding equipment is not high enough to give danger of electric shock in dry conditions. However, arc welding equipment should never be used in damp or wet conditions as the danger of electric shock is then increased.
- Oxygen, Propane and Acetylene cylinders will be kept in approved cylinder stands/trolleys with neck guards fitted at all times. Cylinder valves will be isolated and oxyacetylene sets stored outside buildings in approved storage areas when not in use. Acetylene cylinders will be kept vertical at all times.
- Flame arrestors will be fitted to cylinder end of the delivery hose.

6.3.8.7 Working below Ground

As a rule of thumb; Working below Ground operations shall be classified as confined spaces and confined space procedures shall apply:

- No deep excavation work will commence on any site without prior authorization from the Project Manager and only then when strict precautions are observed. These precautions must be clearly identified in the work permit.
- Open manholes and excavations will be clearly marked and surrounded by suitable barriers. Such holes will remain covered so far as is reasonably practicable when immediate access is not required.
- Deep Excavation (1.2 m or deeper) will be adequately battered, shored, fenced and inspected prior to first entry on a daily basis or following severe weather.
- Records of inspection of excavations will be maintained by the Project Manager.
- All holes should be filled in (reinstated) within 24 hours of the work being completed.

6.3.8.8 Removal of Gratings

Removal of gratings before work needs to carry out a risk assessment and requires a work permit. For grating removal, following requirements shall apply:

- Never remove or leave a piece of grating out without first installing a rigid barricade, guardrail or equivalent, which will entirely encompass the opening, or properly cover the opening.
- If covers are utilized, they must:
    - Be constructed as to adequately support without failure, at least twice the weight of any person(s) and /or equipment that it may use in maintenance or servicing.

- Be secured by means of wire tie downs, clips or other equivalent fastening method.
- Have some means of identifying the hazard on the cover, such as "Floor Opening" or "Hole" stenciled, painted or otherwise prominently inscribed.

- If rigid barricading or guardrail is used, it shall:
  - Be constructed of wood (40x90 mm), angle iron or material of comparable strength, or a combined system of components capable of achieving the same, e.g. wire rope and stanchions.
  - Have a complete top-rail (no voids).
  - Have a top-rail height of not less than (0.9 m) and not more than (1.1 m) above the grate floor.
  - Have a complete mid-rail installed at a point midway between the top edge of the top-rail and the grate floor, with exception to the designated access point to the removed grate(s) opening.
  - Be secured, self-supporting and capable of withstanding all expected loads.
  - Have a toe board, with exception to the designated access point to the removed grate(s) openings.

Upon removal of grating;

- Ensure the remaining grates bordering the removed grate(s) opening are protected from movement or slippage. The existing grating can be secured by wiring down, installing clips or other means capable of being secured.
- Set grating in an area as to not cause a tripping hazard or interfere with other subcontractors or work activities.
- Stack grating away from the opening or no higher than the top of the toe board as to eliminate any chance of it being knocked into or across the opening.
- Stacks shall be organized and uniform and not present a safety hazard.

Additional measures:

- When working in the area of removed grating, ensure adequate lighting is provided to illuminate the opening.
- Warn and inform other personnel in the area of the removed grating.
- When re-installing gratings, ensure that it is correctly positioned and fastened.
- Take additional precautions as necessary to prevent injury.
- All grating must be reinstalled at the completion of the work task or at the end of the shift. No opening shall remain beyond the end of a shift, unless a new permit is obtained.
- No opening shall ever be left unguarded. Post a watch if necessary.

Any requirement for deviation or change to the above shall be submitted in writing to the H&S department for review and approval prior to work.

6.3.9. Gas Cylinders

6.3.9.1 Introduction

There are many hazards associated with the use and storage of compressed gases, which can be minimized by following recommendations issued by the suppliers and by the application of key safety rules.

People using compressed gases should familiarize themselves with the properties of, and specific regulations relating to, the gases which they use.

If requested, the supplier will provide data relating to the properties and safety precautions of any specific gas.

Aerosols are usually propelled by compressed gases and the hazards associated with the propellant may be greater than the aerosol generated.

6.3.9.2 Colour Coding

Staff using compressed gases will be conversant with the system used for identification of cylinder contents recommended in international safety rules.

Compressed gas cylinders are identified as containing standard gases or special gases and mixtures.

It should be noted that not all special gas cylinders follow this system since suppliers may have variations. The primary means of identification in all cases is the labelling of the name and chemical formula of the gas on the cylinder shoulder.

Additionally, some cylinders may carry the name, formula and gas composition stenciled on the body.

Secondary identification can be by the use of colour coding either by body or band colours.

If there is any doubt concerning the identity of any gas or gas mixture, then an analysis of the contents of the cylinder should be carried out. If possible the person carrying out the analysis should be supplied with all known information concerning the contents.

Under no circumstances should staff make up gas mixtures themselves without ensuring that the cylinder is appropriate for the proposed contents and it is clearly labelled with both the contents and the nature of any hazard.

6.3.9.4 Hazards

Gas cylinders are robustly designed to contain their high-pressure contents under normal circumstances. They are however extremely vulnerable when subjected to heating and in a fire they may fail with catastrophic consequences, irrespective of their contents.

Clearly, those containing toxic or flammable gases, or liquefied petroleum gases (LPG) only add to the danger, should they rupture.

For these reasons Fire Authorities are generally concerned when gas cylinders are housed within buildings as they pose serious hazards to those who may have to enter them to deal with fires.

Fire Authority procedures indicate that they will not subject their personnel to unnecessary risk.

Firefighting a building, which is suspected to contain gas cylinders, is likely to be carried out from a safe distance which could result in greater damage to the building.

The valve connection is the weakest point on a cylinder. If it is broken off through misuse or mishandling, then the jet of gas issuing from a fully charged cylinder, regardless of whether it ignites or not, can propel it with such force that serious damage or injury may result. Therefore it is the responsibility of staff, Contractors and subcontractors who move cylinders to ensure that the valve guard or cap is fitted when a cylinder is transported and remains in place until the cylinder is secured for use.

When in use cylinders are maintained and fixed on specifically designed trolley and placed far enough away from the cutting and welding activates that the flame, slag, and sparks will not reach the cylinders.

6.3.9.5 Installation

- Gas cylinders will be safely installed upright and secured preferably protected in cylinder pods located externally of all buildings.
- When installed for semi-permanent use, using purpose built cylinder clamps will securely support cylinders in position preferably.
- Cylinders should be protected from mechanical damage by careful selection of their mounting position.
- Cylinders must not be positioned in walkways where they can cause an obstruction and additional hazards in the event of a fire.

- Appropriate pressure regulators and fittings will be used on all cylinders and users will ensure that they are fully conversant with the correct procedures for installation. It should be appreciated that most cylinders that contain flammable gases have Left Hand Threads, which can be identified by notches on the nut hexagon. Isolating, non-return, flame arrestors and excess flow valves should be fitted where appropriate.
- Fuel and oxygen hoses will be in good condition, distinguishable from each other (colour or markings), taping is applied in compliance with local regulations or guidance documents and are equipped with locking couplings (jubilee clips) and flash back arrestor.
- All fittings upstream of the pressure regulator will be capable of withstanding the maximum cylinder pressure if not fitted with a correctly sized pressure relief device that cannot be isolated.
- Joints will be examined for leaks by using an approved leak detection device and procedure.
- Oil, grease or jointing compounds will never be used on any cylinder fittings.
- Special pressure regulators and pressure gauges must be used for compressed oxygen service and pipes must be thoroughly degreased.
- Some gases (e.g. CO_2, propane or butane) are stored as liquid and rely on vaporization within the cylinder to deliver gas. Users should be aware that this would cause the cylinder to cool significantly with potential to reach cryogenic temperatures.
- If liquid delivery is required then cylinders will be fitted with a dip tube and appropriate external vaporization will be required as necessary.
- Where a needle valve (or other multi-turn valve) is used to regulate gas flow from a cylinder a quarter turn isolation valve of appropriate pressure rating should be installed upstream of this to allow rapid shut-off of the gas flow.

6.3.9.6 Transport

- When cylinders are moved, their valves will always be closed; regulators removed and valve guards or caps fitted.
- Larger cylinders will only be moved on suitable trolleys or in cradles. Cylinders will not be lifted by their valves or with chain slings or magnets and care should be taken to avoid collisions or impacts during lifts.
- Cylinders are unwieldy and heavy and should only be moved by staff with appropriate training in manual handling of them.
- When cylinders are transported, open vehicles should preferably be used. Toxic and flammable gases should never be carried in closed vehicles, unless the driver's cab is separate or isolated from the main vehicle. Cylinders may only be carried in passenger lifts with the prior permission of the EM HSE Manager, who will establish whether passengers will be excluded at the time and what other precautions are necessary.

- When not in use, compressed gas cylinders are in good condition and stored upright and secure in marked binds or racks. Cylinder valves are turned off. Combustibles and oxygen are separated with a minimum distance of 6 meters. If cylinders are not used for 24 hours, regulators are removed and caps secured. O_2 and acetylene regulators and fittings stored away from grease and oils and in good working condition.

6.3.10. Excavations and Trenches

6.3.10.1 Introduction

Many hazards exist when personnel are required to work below the surface of the ground, some of the hazards are obvious some are not so. Risk assessment and permit to work system will be the controlling tools to ensure no harm to personnel or damage to equipment.

The following are best practices used in construction activity and will be applied throughout the project together with the Excavation Procedure.

- No deep excavation or digging may be done without a written permit to work while working within a facility.
- Where personnel are working in a trench 1.2 meters deep or more, there will be one or more ladders securely placed in the trench to provide routine and emergency exit from the bottom to the top edge of the trench.
- Ladders will be placed as a minimum at every 9 meters.
- Excavations and trenches will be shored or sloped suit soil conditions in an approved manner.
- No material will be stored closer than 2 meter from the edge of a trench or excavation; this includes the spoil bank, if any.
- Excavated area whose depth is less than 1.2 m will be closed with soft barricades, e.g. Warning tapes and ropes with ribbon attached. Deep excavated area which depth is greater than 1.2 m will be closed with hard barriers, e.g. guard rail made by scaffold tube or steel or any equivalent materials. The hard barrier should be located 2 m. or more from the edge of excavation.
- Passage over pits, trenches and ditches shall be provided using flying bridges with a width of not less than 1 m which shall be enclosed on both sides with railings with a height of not less than 1.1 m, such railing being sheeted from the bottom up to the height of 0.15 m and provided with a guard rail at a height of 0.5 m from the decking.
- Where persons could stumble into trenches or similar holes during the hours of darkness, these excavations will be illuminated at night with electrical indicating lamps with a voltage not higher than 42 V and physical barriers will be installed.
- A competent person prior to any work and as required will inspect excavations and trenches recording the condition. If there is evidence of slides or cave-ins, all work in

the exposed area will cease until necessary precautions have been taken for the protection of personnel
- Trench inspections will be carried out daily prior to entry.
- Exploratory holes will be dug by hand in all areas where known or suspected underground cables or pipes are located. Machine excavation closer than 1 meter to any known-location underground cable or pipe is forbidden.

6.3.11. Manual Handling and Lifting

6.3.11.1 Introduction

This section covers manual lifting and lifting equipment. Lifting and its assessment is defined in various Turkish, and international legislation. Such equipment includes chains, ropes, lifting tackle, overhead gantry cranes, etc.

6.3.11.2 Assessment of Manual Handling

Manual handling is defined as:

- Lifting / lowering,
- Pushing / pulling,
- Carrying,
- Throwing / dropping / catching an object by the direct application of bodily force.

The most effective way of avoiding injuries from manual handling is to use lifting aids or using the services of a trained lifting team.

When manually lifting (or lowering) from (or to) a low level, lift with knees bent keeping the back straight and achieve the lift by straightening of the legs. Hold the load close to the body and avoid twisting. A clear view over a load should always be kept.

For complex tasks a formal manual handling risk assessment should be carried out in order to identify any necessary control measures to protect personnel.

6.3.11.3 Lifting and Lifting Equipment

Lifting is one of the high risk activities in the industry. Therefore for the guidance on lifting operations and purchasing, maintenance and inspection of lifting equipment and safe lifting practices, KSE Lifting Procedure shall be referred and strictly adhered to.

Purchase of Lifting Equipment

To comply with legal requirements and to reduce the risk of accidents, persons wishing to purchase lifting equipment will satisfy the following:

All persons requiring lifting equipment will contact the EM Project Manager and EM HSE Manager who on approving the request will place the appropriate order for each piece of equipment.

Purchase requisitions will specify that identification numbers be marked on the equipment and on the test certificate.

Lifting equipment will not be accepted from suppliers unless marked with the appropriate identification number.

Maintenance and Records of Lifting Equipment

Relevant Area Supervisor/Manager is responsible for maintaining records of all lifting equipment (e.g. Test Certificates, Register of Lifting Tackle, Record of Thorough Examinations and Record of Reports on Thorough Examination), including weekly inspection records carried out by drivers of mobile lifting appliances.

Owners of equipment will ensure that a copy of any certification from manufacturers/suppliers is passed on to the H&S Department of EM. This includes all certificates of crane and lifting equipment such as slings, chain etc.

Lifting equipment, which is modified or repaired in any way, will be re-tested and a new test certificate issued.

Each item of lifting equipment will be marked with its safe working load. Slings and shackles will be logged in and out of storage.

Inspection of Plant and Equipment

All lifting equipment will be examined by the user before and after use and any failure or deterioration reported to the EM Project Manager.

If, after examination by a competent person, the equipment is found to be defective, it will be taken out of service until it has been repaired and re-certified. Followings are the rejection criteria:

- Hooks that have been opened more than 15 percent of the normal throat opening measured at the narrowest point or twisted more than 10 degrees from the plane of the unbent hook.
- Five randomly broken wires in one lay or three broken wires in one strand of one lay.
- Wearing or scraping of one-third the original diameter of outside individual wires.

- Rope that is severely kinked, crushed, cut, or damaged in any other way which distorts the rope structure (kinking permanently damages a wire rope and accelerates wear).
- Considerable corrosion in the valleys between strands.
- Evidence of heat damage, such as welding marks.
- Reduction from nominal rope diameter 25% or more.
- Melting or charring of any part of the sling surface.
- The web sling which is melting or charring any part of surface
- The steel rope which has any 7% defective in steel surface of any cut should be removed from the site immediately.
- A web sling, which has any cut, will be removed immediately from use and the task location".
- Snags, punctures, tears, cuts, or abnormal wear.
- Broken or worn stitches.
- Distorted fittings.
- Discolouration or rotting.
- Missing inspection label or mark.

All lifting equipment and appliances will be marked with the SWL and thoroughly examined by a competent person at the intervals specified below:

Equipment	Inspection Frequency
Overhead Cranes, Mobile Lifting Platforms	Every 3 months
Chain, Ropes, Ancillary Lifting Tackle	Every 3 months
Lifts, Hoists	Every 3 months
Lifting Equipment and Accessories	Every 3 months

A site colour code system will be instigated, changing on a three monthly cycle.

The colour marking for slings and lifting equipment indicates that it has been inspected at the specified frequency.

The site will be notified of the correct colour for the current period. Equipment not showing the current colour will be withdrawn from service and the H&S Department to be advised. Detail lifting activities has been described in Lifting Procedure.

6.3.12. Excavations and Trenches

6.3.12.1 Introduction

The widespread use of mechanical equipment in the construction industry improves the quality and efficiency of the work but it can lead to situations which are potentially hazardous.

This section cannot cover all the situations which could arise, but it outlines some of the hazards likely to be encountered from specific items of equipment and their use.

The only safe way of using mechanical equipment is to have properly trained operators, running equipment that is well maintained and carrying out the work for which it was designed.

- All material handling machinery on site is equipped with a roll over protection system that would protect a driver wearing a seatbelt if the vehicle overturned
- Equipment that is left unattended next to the roadway or on the construction site where work is in progress, is equipped with lights, reflectors, or barricades to identify the location
- Equipment is turned off when unattended. When parked, the load carrying equipment (forks etc.) is lowered and the parking brake set.
- Equipment windows are constructed of safety glass and free of any distortions and cracks that affect the operation. They have their lights unbroken, and no evidence of leak.
- All mechanized equipment on site are provided with a fire extinguisher that is installed so to be readily accessible and is it regularly inspected. Seatbelts are provided and used in motorized equipment. Bi-directional machines are equipped with audible backup alarms.
- All motor vehicles are equipped with the following: 1) operational parking brake, 2) two headlights and tail lights when operating at night or underground, 3) a horn, 4) a backup alarm when it has an obstructed view, 5) windows free of cracks.
- An exclusion zone hard protected is established around operating equipment to prevent persons accessing into unsafe areas.
- Measures will be implemented to prevent cranes and other vehicles encroaching within the safe approach distance energized overhead power lines. This can include warning signs and 'goalposts' either side of the power lines.

- All mechanical equipment shall receive a daily visual check prior to use. These inspections must be documented.

6.3.12.2 Operators

Only trained personnel shall operate any mechanical equipment. Operators shall be trained in the procedures and functions relevant to a specific piece of equipment; they must be fully aware of the capabilities and limitations of the machine and have knowledge of the day-to-day maintenance that it requires.

It is recommended that subcontractors train and test all equipment operators and issue them with written authorization specifying the equipment which they are competent to operate.

Operators of mobile heavy equipment must be in possession of a license for that particular class of machinery.

6.3.12.3 Machinery Guarding

All moving parts of machinery must be shielded by guards. This is particularly true with gears, pulleys, V-belt drives, fans, and revolving shafts. All of these are present on most of the static equipment used on or around construction sites. Other examples of equipment which must be guarded include cooling fans on compressors and generators, the main drive shafts on pumps and dumpers, and the cable drum on winches and concrete mixers.

Guards must be installed on equipment before it arrives on site and maintained in position at all times while the equipment is operating. Guards removed for routine maintenance or for repair must be replaced before the equipment is returned to service.

As safety equipment like tire cages, restraining bars, racks and clips during tire check-out cannot fully protect employees working on or near the tire repair area, always deflate the tire first before making repairs. Inflate tires inside a strong restraining device (tire cage) by increasing the tire pressure very slowly.

6.3.12.4 General Requirements

- Before any mechanical equipment is used on EM site, all required permits must be obtained.
- All machinery should be inspected before being placed in service and at regular intervals thereafter.
- Maintenance schedules should be established for each piece of equipment and strictly followed.

- No repair, adjustment, or replacement of parts on moving machinery is permitted. Before making any repairs, all equipment must be stopped and deactivated so that it cannot be unintentionally started.
- At the start of each shift, the operator must check oil, water, fuel, and hydraulic levels, that all gauges are operating and that the machine is functioning smoothly. Safety equipment (e.g., guards, limit switches, governors) must be checked daily.
- Equipment travelling or working on the highway must have lights and reflectors. Park equipment clear of the roadway. If this is not possible, use flashing lights, cones, or other warning devices to alert approaching traffic.
- When vehicles are left unattended (even overnight), engines must be stopped, parking brakes applied and the wheels chocked. Blades, scraper bowls, and other hydraulic equipment must be lowered to the ground before the operator leaves the machine. The ignition key should be removed and/or battery cables disconnected to avoid start-up by unauthorized personnel.
- Unless otherwise instructed, operators must dismount from machines while maintenance or repair work is being carried out.
- Cabs fitted to equipment must give 360^{o} visibility. Cabs must be kept clean and clear of such items as rubbish and loose tools. Windows must be kept clean at all times and should be replaced if the glass becomes pitted, cracked or broken.
- Where the operator of a mobile machine cannot see the area all around his machine, an attendant must be in a position to direct and assist the operator.
- All equipment must be located so that exhaust fumes will not affect workers in the area. Gasoline-driven equipment shall not be used inside a building or other confined space.

6.3.12.5 Compressors

Compressors are one of the most common pieces of equipment used in construction work. They can be used to supply air for portable power tools or to supply air to sustain men working with breathing apparatus in extremely hazardous atmospheres. There is a considerable difference in the quality of the air used for these two functions.

All employees on site must know the dangers of compressed air. Never use compressed air to dust off clothing or machinery. Horseplay with compressed air must be strictly forbidden. When compressed air is used in special cleaning/purging tasks, goggles and full face shield must be worn.

Compressors must be properly designed, inspected, tested and maintained. Relief valves shall be installed and the air receiver must be periodically inspected.

Before start up, a daily check should be made of the compressor's pressure relief valve, fuel, oil and water levels and the air reservoir should be drained of trapped water. The operating manual for the particular type of compressor used should be strictly followed.

When compressors supply air for breathing:

- The air intake must be located so that it does not draw in exhaust gas.
- There must be a filter to remove oil mist.
- They must be equipped with an automatic high temperature alarm.
- The air must be tested periodically to be certain it is safe to breathe

6.3.12.6 Concrete Mixers and Batching Plants

A concrete mixer of some type will be used on almost every construction site. The principles of good maintenance and properly trained operators apply equally whether it is only a small mixer for masonry work or a full batching plant with a large capacity cement silo, sand and aggregate bins, and a power shovel.

- All chains, gears, and revolving shafts must be guarded. Safety chains and catches must be operative, and the lifting mechanism must be in good order.
- Personnel must not be allowed to work under or near the loading skip unless it is held in position by a safety chain or catch or positively blocked.
- A hooped access ladder must be firmly attached to silos for access to the top manhole. personnel must not be allowed to work inside the silo unless they are wearing a safety belt with a lifeline and an attendant is posted outside ready to assist in case of emergency.
- The approach to the sand and aggregate bins should be barricaded, and the barricades should only be removed to allow access for vehicles delivering material.
- Personal protective equipment such as respirators, ear muffs, and goggles shall be worn. Loose fitting clothes shall not be worn around moving machinery.
- Lockout and tag system is required in batching plants to ensure the safety of repair and/or maintenance personnel. This is a means to disable process/mechanical electrical 'control' equipment during repairs and maintenance.

6.3.12.7 Dumpers and Dump Trucks

Dumpers and dump trucks, commonly used for construction work, often travel on the public highway. Therefore it is essential that they be properly maintained.

- The latch on dumper skips must be in good working order, and the release mechanism should function smoothly.

- Dumpers are not designed to carry passengers. It must be strictly forbidden for employees to ride in the skip or on the engine cover.
- When repairs or maintenance are being carried out on a hydraulically operated dump truck, the dump body should be fully lowered. If it is necessary to have it in the raised position, it must be blocked. Do not rely on the hydraulic ram to support the raised body for an extended period.
- All vehicles with cabs shall be equipped with windshields and powered wipers. Cracked or broken windshields or windows shall be replaced. All cab glass shall be safety glass or equivalent.

6.3.12.8 Excavators

Excavations are carried out using very specialized equipment which roughly falls into two categories: 1) fixed position machines, and 2) moving machines.

The choice of equipment to be used is determined by the size of the project, topography, volume of earth to be hauled out and many other factors. Fixed position machines include, but are not limited to, face shovels backhoes, draglines and grabs. The "fixed" excavator loosens the soil and loads from a stationary position. They are useful to perform specific excavation tasks at a single location. Their loss of mobility is compensated by the fact that greater force can be applied at the excavation face. "Moving" machines include, but are not limited to, bulldozers, loaders, scrapers, graders and trenching machines. They remove, transport and deposit excavated material all in one cycle of operation. They are used in applications where large volumes of earth need to be moved over uneven ground. In this process, they also help to level the ground over which they operate.

- The excavation work permit may require that underground pipelines or cables be located by manual digging. The permit must possess the excavation permit from the local Power Distribution Department as an attachment.
- Operators of excavators must possess a valid license for the machine.
- Outriggers must be fully extended when operating a mechanical excavator so fitted.
- An attendant must be appointed and be available at all times during excavation to assist and guide the operator.
- Excavators with a swinging motion must have a clearance of at least 0.6 meter from any fixed object.
- Booms on excavators must be latched before travel.
- Do not excavate closer than 1 meter to the nearest pipeline or cabling or other equipment in place.

6.3.12.9 Forklift Trucks

Fork lift trucks are designed to operate on firm, level ground. This type of equipment has a limited use in construction operations. They are, however, sometimes used in materials handling yards and for placing loads where there are firm ground conditions. Operators of fork lift trucks must have a valid heavy equipment license.

- It is essential that drivers be fully trained and experienced. They must be able to manipulate loads smoothly and efficiently.
- A specific course of instruction should be established for fork lift drivers. They should not be allowed to use the vehicles on site until they have taken the course.
- Special equipment fitted to the truck, in addition to or in place of the forks, must be designed for the specific machine.
- The truck shall be equipped with overhead protection.
- When traveling with a load on the forks, the forks should be as low as possible to maintain stability.
- If the load being carried obstructs the operator's forward view, he should travel in reverse.
- Operators, loaders, helpers and other workers should never place any part of their bodies between the mast uprights, cross members, or other moving parts of the fork lift truck. Stay well within limits of the truck body or cab.

6.3.12.10 Generators

A competent electrician shall be available to ensure that electrical connections are properly made. The operator should be responsible only for the mechanical function of the machine.

- All pulleys, belts, and fans must be totally enclosed or otherwise guarded.
- The side panels to the engine cover are designed to give access to the machinery for maintenance or repair. They must be closed at all times when the engine is running.
- The machine must be properly grounded before each use.
- All temporary generators are to be located in secondary containment when running or being re-fueled, identified with warning signs for flammable liquids, no smoking etc., equipped with emergency stop, and electrical outlets that comply with local standards, connected to a suitable earth whenever they are in operation and close to fire extinguishers.

Fire Prevention Guide for Portable Generators

The following is a typical check list of the major items to look for. There may be other potential fire hazards not listed, therefore a thorough inspection must be made.

- Repair all fuel leaks.

- Check hose and pipe connections for wear and cracks.
- Clean up all combustible trash around the generator.
- Clean up all fuel spills and place clean sand around area when required.
- Sheds constructed of combustible materials placed around generators and wooden base frames are prohibited.
- Exhaust piping system shall be kept away from work areas and combustible materials.
- Generator sets shall be located at least 15 meters from buildings or materials that may catch fire.
- Inspect all wiring for damage or improper splices/repairs.
- Electrically ground all generator sets (system and frame ground).
- Fire extinguishers must be readily accessible. One CO_2 extinguisher for the generator and a dry chemical extinguisher for the engine drive are recommended.
- Conduct daily inspections of all generator sets using this guide.

6.3.12.11 Graders, Dozers, Scrapers, Loaders and Mini-Loaders

- Heavy earth moving equipment only allows the operator a limited view of the immediate area. It is, therefore, essential that a banks-man be appointed to warn the operator of hazards that cannot be seen from the operator's position.
- This equipment shall be equipped with rollover protection. A valid heavy equipment license required for each operator of such equipment.
- Before moving his machine, the driver must walk around it to see that the area is clear.
- Personnel must not be allowed to sit or lie in the area around the machine.
- The engine shall not be left running when the driver is not at the controls. Before leaving his machine, a driver must shut off the engine and remove the ignition key.
- Blades, scraper bowls, etc. must be lowered to the ground before the driver leaves his unit. The wheels should be properly chocked.
- If there is work to be done underneath such hydraulic equipment, the equipment must be blocked in position.

6.3.13. Substances Hazardous to Health

A substance Hazardous to Health is a substance or preparation which is by legislation and regulation; listed as dangerous or hazardous, a maximum exposure limit or occupational exposure standard given, dust of any kind hazardous to health or any other substance not defined but creates a risk in the workplace. Substances Hazardous to Health can take many forms and include:

- Chemicals,

- products containing chemicals,
- fumes,
- dusts,
- vapors,
- mists,
- gases and asphyxiating gases,
- biological agents (germs). If the packaging has any of the hazard symbols then it is classed as a hazardous substance.
- germs that cause diseases such as leptospirosis or legionnaires disease and germs used in laboratories.

EM, Contractors and subcontractors will be responsible for the proper storage, transportation, handling, use and disposal of all hazardous material utilized in or generated by his activities. Industry practices, EM Control of Substances Hazardous to Health Procedure and Legislation and Regulation to be followed throughout the Project. Note that Control of Hazardous Substances to Health procedure does not cover lead, asbestos or radioactive materials as they are regulated by separate legislation.

6.3.14. Explosive Atmosphere (ATEX)

Explosive atmospheres can be caused by flammable gases, mists or vapors or by combustible dusts. If there is enough of the substance, mixed with air, then all it needs is a source of ignition to cause an explosion.

Explosions can cause loss of life and serious injuries as well as significant damage. Preventing releases of dangerous substances, which can create explosive atmospheres, and preventing sources of ignition are two widely used ways of reducing the risk. Using the correct equipment can help greatly in this.

ATEX is the name commonly given to the two European Directives for controlling explosive atmospheres:

1) Directive 99/92/EC (also known as 'ATEX 137' or the 'ATEX Workplace Directive') on minimum requirements for improving the health and safety protection of workers potentially at risk from explosive atmospheres. The text of the Directive and the supporting EU produced guidelines are available on the EU-website.

2) Directive 94/9/EC (also known as 'ATEX 95' or 'the ATEX Equipment Directive') on the approximation of the laws of Members States concerning equipment and protective systems

intended for use in potentially explosive atmospheres. The text of the Directive and EU produced supporting guidelines are available on the EU website.

In addition to above European Directives, relevant Bosnia & Herzegovina Implementing Regulation on Protection of Employees from ATEX shall be applied in the project.

Therefore all electrical installations in potential ATEX areas shall be in accordance with relevant directive and regulation and requires a permit to work with a comprehensive task risk assessment. Workers in ATEX areas to be trained regarding the risks and emergency response procedures with a level of detail depending on their functions. To keep all project personnel updated. ATEX areas to be updated regularly and posted.

6.3.16. Lockout and Tag-out

LOTO procedure for pre-commissioning has been developed so that risks arising from activities related energy sources are being under control before working on it. Any types of energy such as kinetic, hydraulic, electrical have been described in LOTO Procedure.

Isolation certificate will be required throughout construction phase for isolating energy before working under Permit to Work Procedure.

6.3.17. Food Handling, Storage and Personal Hygiene

6.3.17.1 Food Handling Personnel

All food handlers will be supplied with 2 pairs of uniforms, aprons, caps and safety shoes. They must maintain a clean, neat and tidy appearance, with short fingernails and hair. They must not wear jewelry while working.

Food Handlers must be rigorous in matters of personal hygiene, washing hands before touching food after having touched anything else. Any medical disorder of any nature, including cuts and temperatures, must be reported to a supervisor who will re-assign duties until medical clearance has been obtained.

6.3.17.2 Food Storage

Refrigeration and freezer facilities will be provided. Frozen food will be defrosted in refrigerated cabinets. Facilities will keep frozen food at –18 degrees Celsius, chilled food between –3 and +1 degrees Celsius, and refrigerated food between 1 and 4 degrees Celsius.

All cooked food will be kept separate from uncooked food. Fish and meats will be stored in dedicated separate freezers.

Walk-in freezers/chillers will be provided with internal lighting. An external temperature indication will be given and the store will be readily opened from inside. Sufficient food storage will be provided to cater for emergencies.

Food will be stored such that a first in first out system is in operation. Storage will be on raised shelves. Food store must be maintained clean, tidy and pest free. No cleaning materials will be kept in food stores.

6.3.18. Site Area and Housekeeping

6.3.18.1 Site Establishment

EM will provide a plan, showing how the area allocated to the employer, Contractor and subcontractor for temporary facilities will be utilized.

Good housekeeping will apply to all sections of the site including roads, walkways, temporary buildings and the work areas by EM and subcontractors.

EM, Contractors and subcontractors will install suitable and sufficient pedestrian access to all areas of the sites that personnel are required to access.

Dust control will be applied by subcontractors to prevent hazards which caused by dust on the work site.

Roads and walkways will be maintained clean and every effort will be made to keep mud, slush and other slippery substances off roads and walkways.

Materials and construction equipment not being used will be stored safely in such a way that they will not obstruct other site activities or present a potential for harm to site personnel.

Cables, water and air hoses will be placed where they cannot be damaged, and where they cannot cause damage or injury.

If placed in roadways or pipe ways, the cables and hoses will be placed in a protected trough or suspended above the road or pavement surface and conspicuously tagged and marked. Personnel will not drive their personal cars beyond the parking area.

6.3.18.2 Hygiene

The Temporary Facilities will be maintained in accordance with the highest standard of cleanliness and hygiene.

In eating areas, all waste and scrap food will be discarded daily into containers placed in the lunch area for that purpose.

Rules of cleanliness and order will be enforced amongst all personnel working at the site.

6.3.18.3 Site Waste

Waste materials will be picked up immediately and be properly stored while on site and must be moved off site on a regular basis so as not to create a nuisance.

All combustible waste material will be removed from building interiors at the end of each shift, and placed in placed in waste receptacles located at least 2 meters away from any structure. This distance will be increased as long as it is practicable and possible.

Areas around and routes to fire doors, exits, stairways, fire hydrants, monitors or fire extinguishers will be kept free and clear of obstruction at all times.

Flammable liquid spills will be immediately cleaned from floors, ground, equipment and drip pans.

Outside storage areas and grounds around structures will be kept free and clear of debris accumulations.

All protruding nails will be knocked down or removed from any materials on the site.

Vehicles carrying such material are subject to the same regulations as other vehicles relative to permits for removing material from the site.

6.3.19. General Safety Rules

- H&S bulletin board or similar will be available at camp site and posted announcements shall be followed and obeyed.
- Employees shall comply with all posted signs, and instruction labels. When in doubt, the employee is to request instructions from his supervisor or safety responsible.
- No guest without accompanying supervisor or manager shall be accepted into the work sites.
- Fighting, wrestling or other horse-play on the job site is strictly forbidden.
- Employees using prescribed medicines shall inform the supervisors prior to work.

- Equipment, tools, machines, vehicles, materials or scrap shall not be removed from the job site without approval of the supervisor.
- Tools, vehicles or equipment which are quarantined or signed with "out of order" sign shall not be used.
- No tool, vehicle or equipment shall be modified without approval of the supervisor.
- Use of mobile phones while driving is forbidden.
- Driving with head lights on during every vehicle movement is a project rule and shall be obeyed including all kinds of roads.
- Employees are not allowed to ride on any equipment or vehicle unless a seat is expressly provided and fixed with a seat belt.
- All equipment and vehicles shall be parked at a safe distance away from terraces and trenches.
- Employees are not allowed to sit or lie down behind or in front of parked equipment or vehicles.
- Unless specified otherwise, every cable shall be considered "live" at the work and camp site and necessary precautions shall be taken.
- Use of hand held mobile phones or radios in close proximity to electric detonators or detonating cords, fuel or flammable storage areas is forbidden.
- Working under power lines shall be avoided as much as possible. If unavoidable a supervisor and a banks-man shall be dedicated for monitoring the activity.
- Cable management shall be achieved all around the work places. Cable mess shall be avoided as practical as possible.
- Assigned repairmen or mechanics shall make repairs on equipment or tools. Other employees are prohibited from making repairs.
- Use of hand-made tools is forbidden.
- Safety guards of the equipment or machinery shall not be removed. Moving or rotating parts of the equipment shall not be touched. Attention shall be paid to the equipment which has warning signs of auto-starts.
- Guards of angle grinders shall not be removed for any reason and only disks with suitable rpm shall be used.
- No safety equipment or guards provided on tools and equipment shall be removed or blocked during operations, except during repairs. Such safety equipment or guards shall be replaced after repairs and before reusing tools or equipment.
- Maintain alertness for unusual sounds which may be an early indication of a defect. If unsure stop the machine, report it to supervisor immediately and stay at the controls until an authorized mechanic arrives.

- Transport vehicles shall not be overloaded.
- While working in hot weather, give regular breaks and allow your body cools down by drinking cold drinks. If you do not feel well, request for medical help. Do not take unnecessary risk.
- Working alone where no other personnel exist in close proximity shall be avoided. A lone worker policy is implemented that restrict lone works where necessary only (e.g. confined spaces) and to personal equipped with electronic safety devices.
- If you are under influence of psychological problems that prevents you from working safe, inform your supervisor.
- During the construction period one complete copy of Bosnia & Herzegovina law for the H&S protection will be kept in the EM site office.
- The speed limit on the Project site is 20 km/h unless otherwise posted.
- Individuals must be seated while in moving vehicles and seatbelts must be worn at all times.
- Individuals shall ride with their bodies completely within the body walls of the vehicle.
- Concerning possession and use of alcohol and drugs, EM reserves the right to prohibit any person from property owned or controlled by EM, by denial of access, suspension or revocation of access authorization, peremptory expulsion, or by other means. EM may notify law enforcement authorities of any such suspected criminal violation.
- Individuals shall not wear finger rings, jewelry, loose clothing or flapping clothing or have rags or other objects extending from pockets or belt when in the immediate proximity of moving machinery, motors, engines, etc. Personnel on site shall not wear shorts.
- Workers must report all accidents in which they are involved immediately to their supervisor.
- All tools and equipment must be inspected by the user prior to use for damage or defects and to insure their safe and proper operation.
- Working and walking surfaces are free of tripping hazards including shear connectors, reinforcing bars, anchors, or threaded studs which may project vertically from beams or other work surfaces
- Safe work procedures followed during all erection work to ensure no component is left inadequately supported at any time. No crane slings lowered until the component is fixed in place by other means.
- All steel erection work completed by competent personnel using all required PPE, including fall arrest equipment
- All uncompleted structures are left in a safe and stable condition, capable of surviving foreseeable weather conditions at the end of each work period

- All temporary decking structures required to provide access, are securely fixed in place and compliant with the requirements of section 7 above
- Safe access systems and fall protection systems are installed and if required inspected/tested before they are needed.

6.3.20. General Disciplinary Rules

The following acts are of such serious nature as to warrant immediate and permanent banning of an individual who commits such act on the property:

- Insisting on disregarding H&S rules although previously warned and received training if require,
- Carrying weapons,
- Stealing or malicious mischief,
- Obtaining material, tools or equipment on fraudulent orders or by misrepresentation,
- Falsification of records,
- Fighting (aggressor or defender) or attempting bodily harm to another,
- Being in a partially or completely intoxicated state, or dealing, introducing, possessing, or using intoxicating liquor or narcotics while in the plant,
- Smoking in restricted areas (outside of the designated smoking areas),
- Speeding,
- Drivers and passengers not using seat belts in the vehicle during the trips.

The following irregularities are also considered serious and will result in immediate and permanent banning of an individual who commits them on the property, unless mitigating circumstances justify less drastic action:

- Sleeping or dozing on the job,
- Violation of any criminal law,
- Harboring a disease, which may endanger a fellow worker,
- Negligence of duty in case or use of the property or endangering the life of another while on the property,
- Horseplay or violation of any safety rule,
- Borrowing or lending employee identification equipment,
- Intimidation or coercion of others,
- Climbing any fences or attempting to enter or leave the property except through regularly designated passageways,
- Repetition or accumulation of less serious irregularities,
- Refusal to allow inspection by authorized representative of any packages or bundles while entering or leaving the property,
- Tampering or falsifying time records,

7.0 VERIFICATION AND MONITORING

The purpose of the noise monitoring program is to ensure that the site manages Health and Safety issues and mitigates any significant causes of dangerous situation, accidents, incidents and near misses.

7.1 COMMUNICATIONS

Communication is of great importance for a successful H&S management on site. EM will be in close coordination and communication during the execution of the works and related parties' HSE Manager will have short daily meetings as expected. More meetings to be held between relevant parties for effective communication such as:

7.1.1. Kick-off Meeting

Kick-off meeting will be held and attended by EM, Contractor and subcontractor. During the discussion of H&S requirements EM H&S representative should attend if meeting takes place on the site. Agenda items will include:

- Project expectations
- Type and nature of work
- Scope of work
- Hazard ID to identify additional risks associated with the contracted/subcontracted work.
- Confirmation that work can be safely executed within the proposed programmed of works.
- Project H&S Induction, training and instructions
- Personnel Protective Equipment
- Plant and equipment, standards and requirements
- Noise restriction including local requirements
- Interfaces with other subcontractors
- Reporting of incidents and accidents and near misses.
- Permit to Work System – administration and requirements
- Working on live operating process plant
- Any other specific anticipated hazards related to the new work scope
- H&S management and supervision requirements.

7.1.2 Monthly Health and Safety Review

Once per calendar month EM will organize Monthly H&S Review meeting. EM Project Manager will lead the meeting with EM HSE Manager. Subcontractor's Site Managers and HSE Managers will attend to these meetings as required. The format of that meeting will be based on, but not limited to, the following structure:

- Minutes of the last meeting
- Matters arising
- Accidents, incidents and near misses
- Feedback on incidents
- Monthly look-ahead of construction activities
- Interface between subcontractors
- Performance review
- Additional meetings may be called to address special circumstances
- Work requiring special instructions and precautions
- Lessons learnt

7.1.3 Monthly Health and Safety Committee Meeting

EM require the implementation of a Health and Safety Committee to be formed and monthly H&S Committee meetings to be held as minimum. The Committee will consist of at least the following members: EM representative, HSE Managers, administrative officer, site foreman, worker representative, H&S workers' representative.

However it is the intention of EM that each Contractor's and subcontractor's representation is crucial in the meeting. Therefore the structure of the committee will be finalized on site when work commences. The purpose, scope and format of the meeting will be defined by EM and may be subject to change if enforced by the BiH legislation.

EM will provide training on the items below to all members of committee and their replacements.

- Duties and rights of the Committee
- Regulations on H&S
- Common accidents and their root causes
- Industrial hygiene rules
- Behavioural trainings
- Emergency procedures
- Occupational illnesses

- Specific risks about the constructions

7.1.4 Weekly Health and Safety Review

Once per week EM Project Manager or their delegates and EM HSE Manager will hold an H&S meeting with the Contractors and subcontractors. The Contractors and Subcontractor's H&S personnel will attend these meetings. The format of that meeting will be based on, but not limited to, the following structure:

- Minutes of the last meeting
- Matters arising
- Weekly look ahead
- Accidents, incidents and near misses
- Feedback on incidents
- Interface between subcontractors
- Work requiring special instructions and precautions
- Lessons learnt

After all weekly meetings, Minutes of Meeting document must be prepared to describe necessary corrective actions, define responsible people and completion status.

7.1.5 Site Coordination Meeting

Planning and coordination are key elements in successful H&S Management. The coordination, frequency and format of site meetings will be defined by the project management according to the needs of the project. Pursuant to industry practice, the EM Project manager and supervisors, Contractors, subcontractors and other relevant supervisors will attend these meetings to ensure that the coordination of the activities and site planning are maintained. Additionally, the EM HSE Manager will attend these meetings to assist in the implementation of HSMP.

7.1.6 Toolbox and Team Talks

Team Talks on daily basis

Daily "team talks" shall be given at start of each shift in a language understood by the workforce and will address the application of safety rules and procedures to the hazards of current work. Method statements and risk assessments are going to be major sources for toolbox and team talks. Duration of the team talk will be no less than 5 minutes. In the case of particularly hazardous operations (for example, confined space entry) team talk duration will be appropriate to the task undertaken. Group foreman shall make team talks.

Toolbox talks on weekly basis

The appropriate EM supervisor will conduct weekly toolbox talks every Monday morning at the start of the shift. Topics will be given to supervisors by EM H&S team. Attendance signatures will be obtained.

Monitoring

EM H&S engineers/Supervisors will monitor daily and weekly talks outlined above to demonstrate management commitment, verify quality, and encourage two-way communication.

7.1.7 Health and Safety Inspections, Audits, Walk Downs and Observations

H&S Department, Managers, Supervisors and other employees are expected to continuously check the activities in terms of safety during the execution of their work. Walk Downs or observations will act as inspections but they will be less formal and be an integral part of the job aiming to take the corrective actions immediately. Those observations will be recorded in simple H&S Observation Cards where the format will be finalized by H&S department and the cards will be available on various locations at site.

However H&S performance will also be monitored through more formal inspections and audits where;

- Inspections are defined as the more formal monitoring activities than weekly H&S Walk Downs & Routine Observations and which check sites and/or facilities. H&S observation cards will be used to record findings of walk downs and observations. All findings will be registered and followed through register forms.
- Audits are defined as the most formal and high level monitoring activity. The organization being monitored shall be represented by the person with overall responsibility for H&S matters.

Each Contractor's, subcontractor's, HS management & documentation, storage, warehouse, workshop areas will be specifically inspected in detail by EM on a regular basis. A Non-Compliance tracking system will be implemented and shared by EM. Responsibility & closure period (15 days max) will be assigned for all non-compliances. Corrective actions are to be tracked until closure.

Weekly Inspections

EM H&S department is going to make weekly inspections together to describe site's H&S status and this weekly inspection results shall be shared with the subcontractors to show

necessary improvements. Inspections will be carried out at any time without prior information to the inspected party against a planned checklist of H&S requirements. Any area of default against these requirements shall be the subject of a Non-Compliance Report, which shall be followed up to ensure that the necessary actions have been taken and that they are effective in addressing the non-compliance and preventing any recurrence. Weekly H&S inspections covers construction site activities and site welfare and hygiene conditions as well.

Before carrying out the inspection, prepare the following;

- Inspection Check List. This shall include all of the measurable aspects from the H&S requirements of the area to be inspected. Standard forms will be available for various activities or subjects which can be obtained from the H&S Department.

- Non-Compliance Report template. This shall include the details of the non-compliance, corrective actions with due dates and responsible person for the action with the reporting person's name as minimum. Standard form will be available from the H&S Department.

Inspections shall be carried out such that:

- All questions of the check list are inspected and answered.
- All non-compliances are formally identified on the Non-Compliance Report.
- All non-compliances are identified precisely against the equipment, facility or process (e.g., tag number, process method statement etc.)
- All non-compliances are verbally described and shown to the relevant inspected department representative for agreement.
- All non-compliances reports shall be prepared, signed and countersigned by the inspected department representative before closing the inspection.
- Within 2 days of the inspection, prepare a report. Distribution shall be as a minimum to;
    - Project Manager
    - Group Managers
    - H&S Department
    - Relevant Department Managers
    - Relevant Department Supervisors
    - Document Control Center
- As a result of the inspection, review the monitoring database and identify whether the on-going monitoring of the inspected Organization is adequate, inadequate or excessive. Make any adjustments to the plan accordingly.
- Ensure that all Non Compliance reports are followed up to ensure that;
    - The applied corrective action has effectively addressed the non-compliance.
    - The applied corrective action shall prevent a similar recurrence.
    - The non-compliance shall only be signed as closed when the above can be demonstrated.

Audits

Audits will be conducted by H&S Department for Contractor and subcontractors on a monthly basis. Findings of audit will be recorded and shared with all related parties.

EM and third-party auditing company are going to organize quarterly HSE audit in a year.

7.2 INFORMATION AND DOCUMENTATION

Project management systems addressing technical integrity and H&S will be properly documented and totally adhered to.

Documentation will be in the English and Bosnian languages where practical and applicable. The document templates will be available in both languages.

As built documentation and documented verification will be provided demonstrating that construction is in accordance with design and verification that testing and commissioning is complete and to an acceptable standard.

The following information will be collected by EM and kept on file at EM site H&S office throughout the duration of the project.

- Weekly Safety Reports (Weekly orientation, man-hours worked, Weekly Training Program, etc.)Weekly Inspection
- Monthly Injury Summary
- Injury and Damage Reports
- Motor Vehicle Accidents
- Fire Extinguisher Inspection
- Preliminary and Detailed Accident Reports
- Crane and Heavy Equipment Operator's License.
- Crane Inspections
- Lifting equipment certificates & Inspection reports
- H&S Trainings
- Tool Box Meeting Reports and Attendance
- Disciplinary Actions.
- Work Permits (PTW)
- Near miss reports

Before the 10th of each month, EM will establish and share a report with man-hours worked and number of near misses, first aid cases and injury and illnesses for each company working on the project.

A database managed by EM for all the personnel, including Contractors and subcontractors, which will record the following: Injuries and illnesses, first aids and near misses, induction trainings, chemicals, disciplinary infraction, non-compliances. Database also records qualifications & training of all workers on site. Associated certificates, internal or external, are made available in specific folders in the H&S office.

Same database managed by EM for all subcontractors records all equipment on site that requires periodical inspection (engines, electrical devices, welding post or generators, gas bottle accessories, emergency equipment, lifting equipment, mechanized equipment, harnesses, etc.). Database identifies the upcoming checks. Where required by regulation, third party certificates are also recorded.

7.2.1 Pre-Construction Information to Ministry

Implementation of the BiH requirements of Regulation on Health and Safety at Construction Works, requires that EM shall complete the definitive information form required by the regulation and apply to the Regional Labor Directorate in the project area prior to construction.

7.3 INCIDENT REPORTING, ANALYSIS and PREVENTION

7.3.1 Introduction

The reporting and investigation of accidents, incidents and near misses is an essential tool in the management of health & safety issues in order to prevent recurrence of similar events.

EM will ensure that all injuries, illnesses, accidents, near misses and hazards are reported and documented and that the responsible Employer will be notified on emergency situations, accidents appearing at the site within the terms provided in the related procedure. Investigations are to be performed in cooperation with EM, Contractors and subcontractors.

This section addresses those accidents and incidents, which must be reported as soon as practical to the EM Project Manager and EM HSE Manager.

Near misses, first aids, injuries and illnesses are to be reported and tracked. EM is to be informed immediately by a short report by the Contractor or subcontractor including the causes and recurrence prevention measures. A short-report format will be provided by EM H&S Department. A more detailed investigation report for lost time incident, restricted work injuries, including Root Causes Analysis and actions plan, is to be provided to EM by Contractors and

subcontractors. Contractor's and Subcontractors' Site Manager, EM HSE Manager or representative will prepare the report in coordination with EM H&S department. Learnings and corrective actions from the incident are shared on site by a flash report.

7.3.2 Incidents Immediately Reportable to the Project

All incidents and accidents shall be reported. But following incidents will be reported immediately (day or night) to the EM Project Manager, EM HSE Manager. EM HSE Manager and EM Project Manager will inform the Owner and Owner's HSE Manager.

Accidents/incidents immediately reportable are:

- Death resulting from an accident arising out of, or in connection with work.
- Major injury.
- Fractures.
- Any amputation.
- Dislocation of the shoulder, hip, knee or spine.
- Any injury resulting from an electric shock or electrical burn (including burns from arcing or arcing products) leading to unconsciousness or requiring resuscitation or admittance to hospital for more than 24 hours.
- Any injury leading to hypothermia, heat induced illness or to unconsciousness.
- Loss of consciousness caused by asphyxia or by exposure to a harmful substance or biological agent.
- Either acute illness requiring medical treatment or loss of consciousness, from the absorption of any substance by inhalation, ingestion or through the skin.
- Acute illness requiring medical treatment where there is reason to believe that this resulted from exposure to a biological agent or its toxins or infected material.

In addition, all incidents resulting in absence from work will be reported to EM and the responsible Employer's Site Managers, EM HSE Chief by the line management latest by on the first day of absence following the injury.

7.3.3 Dangerous Occurrences Immediately Reportable to the Project

Certain types of incident given below will be reported immediately (day or night) to the EM Project Manager, EM HSE Manager.

Dangerous occurrences involve the use of:

- Lifting machinery etc.

- Pressure vessels
- Electrical short circuit
- Explosion or fire
- Escape of flammable substances
- Collapse of scaffolding
- Collapse of building or structure
- Escape of a substance or pathogen

Lifting Machinery

The collapse, overturning or the failure of any load bearing part of:

- Any lift, hoist, crane, derrick or mobile powered access platform;
- Any excavator

Pressure Vessels

The failure of any closed vessel (including a boiler or boiler tube) or of any associated pipe-work, in which the internal pressure was above or below atmospheric pressure, where the failure has the potential to cause serious injury.

Electrical Short Circuit

An electrical short circuit or overload which include fire or explosion which resulted stoppage of the plant or which has the potential to cause serious injury.

Explosion or Fire

Explosion or fire.

Escape of Flammable Substances

A sudden, uncontrolled release inside a building which can cause hazardous situation.

Collapse of Scaffolding

The complete or partial collapse of any scaffold

Collapse of Building or Structure

Any unintended collapse or partial collapse of:

- Any building or structure under construction, reconstruction, alteration or demolition.

- Any floor or wall of any building being used as a place of work.
- Any false work.

Escape of a Substance including Biological Agents

The accidental release or the escape of any substance in a quantity that is sufficient to cause death or major injury, or any other serious damage to the health of any person.

Any incident that results in or could have resulted in a release or an escape of a biological agent that is likely to cause severe human infection or illness.

7.3.4 Incident Investigation

EM will develop an Incident Investigation and Reporting Procedure and an Incident Investigation Team, comprising of permanent and part time members. Attendance by senior management will depend on the severity or potential severity of the incident; however, as a minimum, the EM HSE Manager will chair all investigations.

An incident investigation system is required to enable root causes and actions to prevent recurrences to be identified and resolved in a timely manner.

7.4 FIRST AID and MEDICAL TREATMENT

EM will ensure, through auditable means, that all personnel, including Contractors and subcontractors, employed on the project are assessed and passed as medically for fitness to work, and periodically re-assessed. Contractors and Subcontractors are fully responsible for assessing the medical conditions of his employees and shall be ready to submit all necessary documents related with medical assessments of his employees. EM will ensure within his proposed system of audit and review that spot checks are conducted to verify compliance with this requirement.

No one suffering from a transmittable disease will be allowed to work on the project. Employees using medication, which could influence their performance, will report this to the medical staff.

EM and subcontractors will operate a personal health programme in order to prevent illness occurring or spreading.

7.4.1 Medical Treatment and First Aid Facilities [Needs to also reference local medical facilities/ambulances that will be contracted]

This section will outline the details of medical treatments and first aid facilities standards for the project. Any changes due to local regulations or site needs will be reflected in this document.

EM will provide first aid, medical and occupational health facilities for subcontractor personnel and the Employer's personnel operating at the same site.

EM will provide a hierarchy of first aid and medical treatment facilities to rapidly and effectively treat any personnel taken ill or injured during the course of the project. The approach will be to provide rapid first aid and trauma response at the casualty location, followed by stabilization and evacuation to specialist medical care in a dedicated facility.

To achieve this, the subcontractor will provide:

- Basic first aid training for the workforce provided by a workplace doctor.
- Sufficient personnel trained as Advanced First Aiders are to provide immediate medical assistance to injured staff on the site. The Advanced First Aiders will be trained in the use of the trauma response kits.
- First aid kits suitable for trauma response in all working areas.
- Offices and site containers must be equipped with adequate numbers of first aid kits. First Aids Kits will be checked during weekly inspections with records on First Aid Kit Tag.
- Medical treatment and first aid facilities shall be in accordance with the local regulations.

7.5 SECURITY

EM will employ security personnel to monitor and control movement of site personnel and equipment at project temporary facilities.

Project facilities will be surrounded by fence and lighting shall be installed as necessary. All personnel shall access work sites through designated access gates manned and controlled by security guards. Entrances and exits of work sites will be manned 24 hours per day, 7 days per week including holidays. No one shall be allowed without a proper gate pass, except for cases of emergency.

Further information shall be reached in Site Security and Security Emergency procedure.

8.0 RELATED DOCUMENTS

- Traffic Management Plan
- Emergency Preparedness and Response Plan
- Fire Prevention and Protection Procedure
- Risk Assessment Procedure
- Site Security & Security Emergency Procedure
- Working at Height Procedure
- Noise Management Procedure
- PPE Procedure
- Confined Space Procedure
- Permit To Work Procedure
- Control of Substances Hazardous to Health Procedure
- Lifting Procedure
- Disciplinary Procedure
- H&S Training Procedure
- LOTO for Construction Procedure
- Incident Investigation and Reporting Procedure
- HS Incentive Scheme Procedure
- Heat Stress Management Procedure
- Safety Signs and Barricades Procedure
- Alcohol and Drug Procedure

9.0 REFERENCES

- EM H&S Policy, Plans and Procedures
- ATEX Workplace Directive 99/92/EC
- ATEX Equipment Directive 94/9/EC
- Implementing Regulation on ATEX (25328)
- Implementing Regulation on Protection From Industrial Radiography in Industry (25869)
- Implementing Regulation on First Aid (24762)
- IFC Environmental, Health and Safety Guidelines – General (April 2007)