

HEALTH AND SAFETY MANUAL



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Acronyms and Abbreviations

H&S	Health & Safety
MSDS	Material Safety Data Sheets
PO	Partner Organization
PPE	Personal Protective Equipment

1 Construction site rules of conduct

The following requirements and safety rules have been developed for your protection while visiting or working at the POs construction sites. Upon approval of access authorization, receipt of entry permits and entrance to work area(s), all will be expected to observe each and all of these rules.

1. Authorized visitors, workers and staffs must check in / check out and report to security guards, construction supervisor or site manager and proceed to the appropriate work area at the office of the contractor working in that area.
2. Under certain circumstances, visitors may be required to be accompanied on the worksite by an authorized escort who is familiar with the construction project. If so, visitors must stay with the escort at all times during the visit.
3. Hard hats are required and must be worn at all times in the construction area while outside of a vehicle. Escort must ensure that hard hats are available and worn by all persons authorized and entering the area.
4. Leather type shoes or boots must be worn at all times by everyone while on the construction site. Tennis shoes, sandals, high heels shoes, etc., are not permitted on the construction sites at any times.
5. Keep a safe distance from construction work at all times (recommended minimum distance is 100 feet) unless accompanied and permitted by an authorized escort.
6. Do not walk and drive under material loads being hoisted and suspended.
7. Obey all “restricted areas”, “no smoking” and “warning” signs.
8. Watch your steps at all times and be alert for tripping hazards.
9. Trash dumping on the construction site is strictly forbidden.
10. Hearing protection (e.g., earplug) must be worn in close proximity to equipment and/ or machinery which is in operation.
11. In the event of an accident on the construction site during visit, do not interfere in rescue efforts by emergency response team(s) unless physician or are otherwise qualified. In that instance, may volunteer service but remain under the direction of the emergency response team supervisor.
12. All visitors must check out of the appropriate work area upon completion of their visit and must do so at the office where initial check in occurred. The visitor’s entry permit must be returned to the approving agent at such time as check out occurs.

Failure to follow the above rules of conduct or other special instruction may result in the revocation and or future denial of access authorization. Questions pertaining to these rules or other general safety and security related issues should be directed to the PO representatives and/or supervision engineer.

12.1 Design

The following apply under the “design” umbrella:

- ☐ Obtain Official Land Documentation from the relevant Ministry
- ☐ Site Assessment for suitability
- ☐ Site Topographical Land Survey
- ☐ Site Environmental Assessment
- ☐ Completion of Design of the relevant facility
- Contractor Pre-qualification
- ☐ Geotechnical assessments/soil tests

12.2 Construction

The following apply under the “construction” umbrella:

- ☐ Tender the individual Project
- ☐ Contract to a suitable Contractor
- ☐ Project Management of the site

12.3 Stages of construction

- ☐ Excavation of foundations, canals, setting basins, fore bays, power houses etc.
- ☐ Excavation of road basements
- ☐ Excavation of construction foundations in river beds
- ☐ Boulders and gabion work, stone filling
- ☐ Shuttering/concrete foundations, beams and slabs, linear concrete foundations
- ☐ Stone Masonry work
- ☐ Plastering
- ☐ Compacting
- ☐ Drainage
- ☐ Culverts
- ☐ Bridges
- ☐ Joinery
- ☐ Roofing
- ☐ Electrical
- ☐ Welding
- ☐ Blasting
- ☐ Plumbing
- ☐ Steel structures
- ☐ Painting
- ☐ Supplying equipment where required
- ☐ Asphaltting
- ☐ Power grids

2 Background to health and safety in Pakistan

Note:

Safety can be defined as the condition of being protected from damage or injury, and therefore being in a secure state. It is vital that every employee/contractor/member of the public is in a safe condition, for both mental and physical well-being. Safe methods of work allow reduced possibility of any person, equipment or structure being injured or damaged, and therefore reducing the risks of a worker losing salaries together with increased construction costs and delays to a project. Unsafe conduct of work encompasses situations such as individual negligence in relation to untidy work areas and non-reporting of potential safety issues.

High unemployment rates allow contactors to easily replace workers who are not performing at a satisfactory level. Workers therefore often take risks which tend to increase the level of accidents and fatalities on job sites.

The low national minimum salary also acts as a contributing factor for poor productivity rates in Pakistan. Because of the small wages required for hiring workers, contractors prefer to increase labor rather than invest in equipment capital. In addition, even if heavy or specialized equipment is available, laborers tend to continue to use the basic tools with which they are accustomed to working due to minimum training.

Workers will tend to attribute accidents on site to their negligence and accept that construction is a dangerous occupation. Generally, laws to protect laborers are not strictly enforced and contractors are not heavily involved with monetary compensation payments to injured workers.

In order to protect all site personnel, members of the public and machinery from risks, a general plan for health and safety must be implemented. The plan must be relevant to the conditions of the country, and being a developing country, Pakistan does not have a public record in Health and Safety. The main reason for this is that "health and safety" is a relatively new concept to most Afghan workers, employers, companies and as well governmental authorities. Therefore a health a safety plan relevant to a western standard is realistically extremely difficult, if not, impossible to implement. As mentioned above, there is no law per say which exists to prosecute a person or persons not carrying their duty of care. This health and safety plan seeks to set out guidelines based upon procedures that can be effectively policed.

The intention of this safety manual is to enable an accident free worksite.

3 General guidelines for health and safety

The following points are vital to a successful health and safety program:

- No person shall be instructed or required to work under conditions that are dangerous to their health.
- Each employee is responsible to carry out works in a safe manner, including the use of Personal Protective Equipment (PPE) when required and general personal safe work practices. Each employee shall report unsafe conducts of work, preventing avoidable accidents to site personnel. Reporting shall be made to the designated PO safety representative or site manager on site.
- Worksite shall have person(s) available on site who can translate information in relevant languages when required.
- Inductions shall take place for each individual employed at the project site, together with visitors. The induction will identify the known site safety and health risks as well as mitigating measures.

Note:

Construction sites are dangerous areas. Danger can be defined as anything from a simple carpenter's nail to a load being carried on a crane; it is vital that precautions are put in place to prevent incidents ranging from workers stepping on a nail to an insecure load being dropped on a worker.

3.1 Ensuring site safety

Our most valued resources are contractor's employees and the communities we serve. We are dedicated to providing a safe and healthful environment for employees and customers, protecting the public, and preserving contractors properties and assets.

The Safety Plan will assist management and employees in controlling hazards and minimizing employee and customer injuries, damage to resident's property and damage to contractors and community's properties.

All employees, contractors and sub-contractors will follow this program. Noncompliance to this program by either contractor personnel or PO employees/sub-contractors will result in one of the following:

1. Verbal warning; if minor violation (i.e. violation resulting in non-injury/damage)
2. Written warning; if second minor violation or minor injury/damage caused.
3. Immediate dismissal; if third minor violation, or second minor injury/damage caused, or first major injury/damage caused.

All employees/contractors and subcontractors shall take the time to study and understand the PO Safety Plan and confirm it by signature.

3.2 Engineering personnel

All PO Engineers, Service Provider Engineers and site personnel shall undertake training based upon this Safety Plan prior to startup of the projects. In turn, the Site Supervision Engineers will provide a copy of this Safety Plan to the Main Contractor for the project, and brief the supervisory staff of PO site safety requirements. This shall be in the form of an Induction.

The contractor shall conduct special trainings for leading site personnel and as well for the subcontractor's foreman, supervisor, engineers etc.

Main Contractor (To be announced upon contract award)

Important note:

A copy of this manual will be issued to Contractors at Tendering stage. Contractors will be required to submit an "Accident Prevention Plan (APP)" as part of the submitted bid proposal. The APP will be based upon, and in compliance with the PO safety manual.

The main contractor will brief ALL its workers and sub-contractors entering the worksite, if necessary on daily base. All names shall be recorded on an induction form and signed by the employees. It shall be highlighted that everyone has a duty of care with regards to safety. All sub-contractors are under the responsibility of the Main Contractor.

3.3 Site safety meetings

3.3.1 Inductions

Employees shall be provided a health and safety Induction by the assigned Construction Manager (Contractor) PRIOR TO START OF WORK. Inductions shall include:

- Personal requirements and responsibilities for accident prevention
- General policies outlined in this document
- Contractor (Safety Engineer) and Construction Supervision Engineer responsibilities for reporting all accidents
- Information relating to medical facilities/personnel and emergency responses
- Procedures for reporting and correcting unsafe conditions or work practices
- Relevant job hazards (Activity Hazard Analysis (AHA)) may be presented

Upon completion of Inductions, each worker shall be assigned a specific number. This number will be displayed on the workers hard hat. The number will be filed on a master register with the name of the employee. The employee will be required to note his/her number on a daily log sheet (upon arrival and leaving), to show the Site Engineer who is on site on each particular day. This has the added benefit of carrying out a number check should the site be evacuated.

3.3.2 Weekly safety meetings

On a weekly basis the Contractor Safety Representative staff shall meet at the Site/Sub Office to discuss safety matters with the Contractors Quality and Safety representative. The meeting will follow an officially documented site safety inspection between the two representatives. The main issues raised noted in the inspections and within the meetings shall be recorded.

The form "weekly safety assessment" has to be filled out by the contractors H&S rep. and submitted to the Construction Supervision Engineer.

Note: Meetings between contractor supervisors/foremen and workers will be encouraged to meet at least on a weekly basis, and if required on a daily basis, in the form of a “tool box talk”. Notes from this meeting may be presented in the Contractors weekly safety meetings.

3.3.3 Monthly safety updates

All workers, site supervisory staff and PO representatives shall meet every six months to discuss safety issues. These meetings will provide an opportunity to update the safety requirements, resolve safety concerns and improve general site safety conditions. If it is necessary to update in any occasion the contractor has to inform the Construction Supervision Engineer.

4 Guidelines for safety training meetings

The contractor’s supervisors, engineers and foremen are responsible:

- for preparing and conducting Safety Training Meetings for employee on a bi-weekly basis
- Special Safety Meeting shall be conducted immediately when notified by PO, contractors H&S Engineer or Construction Supervision Engineer of a serious accident, incident or any serious problems on-site
- The contractor will be notified with pertinent information concerning these incidents where a common hazard exists or information is necessitated
- The meetings are an essential element of the Safety and Health Training Program and a duty. Projects which conduct good meetings attain better safety records than those having no safety meetings.

4.1 Conducting meeting

- Start on time! You can lose interest if delay occurs.
- Make the meeting short and get into the point.
- Start the meeting by complimenting on some recent good work and evaluation of the recent period
- Give the talk in your own words.
- To participate in the meeting is a duty for every employee because the purpose of the meeting is to get workers to think about safety problems. Encourage them to offer suggestions for improving safety in the work area.
- Maintain control. Do not allow the meeting to develop into a wasteful session and be time consuming.

4.2 Other items to cover, if applicable

- Review any injuries or near miss incident any crew member had during the past week or a special safety meeting topic identified by PO, contractors H&S Engineer or Construction Supervision Engineer
- Review safety violations noted during the past week.
- Review the work planned for the week ahead.

4.3 Record keeping requirements

- Each employee shall sign the attendance sheet at the conclusion of the meeting and a copy of the attendance must be submitted to the PO, contractors H&S Engineer or Construction Supervision Engineer.

- Make sure that it is dated and the location is listed.
- Subject discussed must be covered in detail not only in general safety.

4.4 Safety reminders

The following basic safety requirements shall be followed:

- All guards and covers should be replaced after adjustment or maintenance of equipment
- Ensure that handrails and walkways are in good repair and clear of tools, spare parts and obstructions
- Never adjust or lubricant the equipment while it is operating
- Stand clear of hauling equipment which is dumping material
- Always look around equipment before starting to ensure no one is near moving parts, making inspections or adjustments.
- Do not drop materials or tools from walkways or ladders without barricading the area below or having someone standing by to keep other persons away from the danger area
- Blocking under and around equipment or structure must be of suitable material and properly placed to support the structure. Check blocking periodically for signs of failure or shifting that could allow structure or equipment to fall.
- Only electricians should handle any kind of work on electrical equipment. Avoid touching loose or misplaced electrical wires. They are all dangerous.
- Mark all flammable materials, such as oils, greases and gasoline. Store these materials in an incombustible building situated away from the structure.
- Wear proper cloth and sturdy shoes to protect your feet while working. Wear gloves whenever possible. The uses of hard hats and safety glasses or goggles are definite safety protective equipment and must be worn whenever required.
- Think safety! Point out hazards and instruct new employees on safety.

5 Health and safety guidelines

5.1 Sanitation

Dry toilets shall be constructed on site for use by all personnel. Upon completion of guard rooms, an indoor wet toilet facility shall be made available for all personnel.

All waste generated on site shall be disposed of at a proper facility upon written direction of the local administration.

Drinking water shall be available upon completion of the water wells. As drinking water shall not be available until the completion of water well, bottled water shall be imported into the site. This shall be the responsibility of the contractor.

5.2 First aid

The contractor shall train each site Engineer in Basic First Aid and the contractor shall appoint a first-aid trained employee for each site.

Basic First Aid shall include training on the following:

- Basic CPR (Cardio-Pulmonary Resuscitation)

- Treatment for cuts and burns
- Treatment for minor bone breakages

A First Aid station kit and a stretcher shall be available on each individual site. The expense of furnishing and maintaining first aid appliances and services shall be borne by the contractor.

The box shall be large enough so that each item is in plain view and easily accessible and shall provide effective and convenient treatment of minor injuries via handy plaster and wipes dispensers.

- Station Comprises of: Wall-mounting unit with mirror , statutory first aid kit containing 1 guidance card, 6 wound cleansing wipes, 20 assorted plasters, 6 sterile medium dressings, 2 sterile large dressings, 4 triangular bandages, 6 safety pins, 2 sterile no.16 eye pads, and 1 pair of disposable gloves, clothing cutter
- Station also includes two 500ml bottles of 0.9% sterile eyewash; first aid pocket guide; 100 wash proof plasters; 50 wound cleansing wipes; accident book
- Up to 2 Additional Kits to complete the Station (sold separately): Resuscitation kit; first aid accessories kit; burns kit; biohazard spill kit
- Resuscitation Kit contains: foil blanket; 2 x pair latex gloves; 2 x antiseptic wipes; disposable apron and mask resuscitator
- First Aid Accessories Kit contains: clothing cutters; 2 x 200ml sterile saline; 50 x pairs disposable gloves and single-use cold pack
- Burn Kit contains: 2 x Water jell burns dressings; 2 x conformable bandages; 50ml burns gel and 2 x pairs latex gloves
- Biohazard Spill Kit contains: 2 x 10g body fluid sorbent; 2 x 30ml disinfectant spray and 2 x disposal kits

Identification and directional markers shall be used to readily denote the location of all first-aid stations.

The PO, contractors H&S Engineer or Construction Supervision Engineer and the contractor's first aid employee shall inspect first aid boxes and their contents at not less than quarter-yearly intervals and shall mark the inspection card for each box with the date of the most recent inspection and the signature of the person making the inspection.

The first aid station shall be in the charge of a worker who works in the immediate vicinity of the first aid station and who is qualified in first aid. For large worksites with 100 or more employees (hospitals) an attendant is required. First aiders shall wear a symbol on their helmet for an easy identification.

5.3 Personal protective equipment (PPE)

The Contractor shall ensure all employees (main contractor and sub-contractors *Personal Protective Equipment (PPE)*)

- High Visibility Jacket/vest (green for safety personnel)
- Hard Hat (green for safety personnel)
- Gloves (when required)
- Eye Protection (when required)
- Ear Protection (when required)
- Harnesses (when required)
- Suitable safety footwear

The contractor shall provide its employees with relevant PPE. A stock of PPE shall be maintained on site for visitors, including Government representatives. PPE shall be regularly checked (at least before each use) and unsuitable PPE shall be disposed of and replaced immediately.

Important Note:

Hard Hats have an expiry date. This date can be found stamped on the underside of the hat. Under no circumstances shall hard hats be worn after this expiry date.

Any worker or visitor refusing to wear the correct PPE without good reason for the proposed activity shall be refused entry onto site.

Note:

All users of harnesses shall be pre trained in the proper use of such equipment. This shall include the use of lanyards, secure fixing, d-rings, snap hooks, ropes etc., together with maintenance of equipment.

5.4 Hazardous substances

Exposure, through inhalation, ingestion, skin absorption, or physical contact, to any chemical, biological, or physical agent in excess of the acceptable limits shall be prohibited.

The Contractor shall provide Risk Assessments for evaluation where required. The analyses shall identify all substances, agents, and environments that present a hazard and recommend hazard control measures. Engineering and administrative controls shall be used to control hazards. In cases where engineering or administrative controls are not feasible, PPE may be used. The analyses shall identify that it serves as certification of

Hazard assessment, the workplace and activity evaluated the name of the person certifying that the evaluation has been performed and the date of the evaluation.

When any hazardous substance is procured, used, stored, or disposed, Material Safety Data Sheets (MSDS) for the substances shall be available at the worksite, supplied by the Contractor. All workers using, storing, or disposing of hazardous substances shall receive training in the information contained in the MSDS for the substance and any general safety and health instruction required understanding this information.

5.5 Lighting

Where required, all areas of work shall be adequately illuminated to ensure persons working in the area can carry out their duties and tasks without hindrance due to lack of light. This rule also applies to workers passing through such works.

5.6 Signage

Signs, tags, and labels shall be provided/installed showing warning and caution of hazards, as well as instructions and directions for workers and the public.

Signs, tags, and labels shall be visible at all times when the hazard or problem exists and shall be removed or covered when the hazard or problem no longer exists.

All workers shall be informed as to the meaning of the various signs, tags, and labels used throughout the site and the special precautions required. Where required, signs shall be written in English, Dari and Pashto.

All hazardous construction areas shall be cordoned-off using caution tape, or other suitable methods approved by the Construction Supervision Engineers.

5.7 Fire prevention and protection

All flammable substances shall be stored according to the MSDS information. All firefighting equipment shall be in good working order and accessible to all workers. All workers shall be informed and trained as to the locations and use of fire extinguishers.

Any purpose fires or open flames shall not be left unattended.

All site offices shall be equipped with fire alarms. Maintenance and testing shall be carried out on a weekly basis.

5.8 Welding and cutting

All welders, cutters and relevant supervisors shall be trained in the safe operation and maintenance of their equipment. Maintenance and checks shall occur before each use of equipment. Defective equipment shall be removed from site, repaired or replaced and re-inspected before being used in operation.

All workers and member of the public shall be protected from welding rays, flashes, sparks, molten metal, and slag. Any combustible material close to welding or cutting shall be removed prior to the operation.

When welding, cutting or heating operation is such that normal fire prevention precautions are not sufficient, additional personnel shall be assigned to guard against fire and shall be instructed in anticipated fire hazards and how firefighting equipment is to be used.

5.9 Electrical

A sketch of proposed temporary power distribution systems shall be submitted to PO Construction Supervision Engineer and accepted for use before temporary power is installed. The sketch shall indicate the location, voltages, and means of protection of all circuits, disconnecting means, grounding and lighting circuits.

All electrical wiring, equipment and work practices shall be according to specifications.

Before any work begins, the person in charge shall ascertain by inquiry, by direct observation, or by instruments, whether any part of an electric power circuit (exposed or concealed) is located such that the performance of work could bring any person, tool, or machine into physical or electrical contact with it.

Whenever possible, all equipment and circuits to be worked on shall be isolated before work is started. Live parts of wiring or equipment shall be guarded to protect all persons or objects from harm.

Transformer banks and high voltage equipment shall be protected from unauthorized access. Entrances not under constant observation shall be kept locked, metallic enclosures shall be grounded, and signs warning of high voltage and prohibiting unauthorized entrance shall be posted at entrances.

All flexible cords shall be inspected by the user of the cord at least daily.

Electric wire and flexible cord passing through work areas shall be protected from damage (including that caused by foot traffic, vehicles, sharp corners, protections, and pinching).

Electrical tools and casings should be tested for earth continuity as well as intact cords every six months and marked as such.

Patched, oil-soaked, worn, or frayed electric cords or cables shall not be used.

Only authorized/skilled labor will be permitted to work on electrical systems/machinery/tools.

5.10 Hand and power tools

All power tools shall be from a reputable manufacturer.

The use, inspection, and maintenance shall be in accordance with the reputable manufacturers guidelines and used solely for the purpose for which the manufacturer intended. Instructions for the safe use shall be maintained with the tools.

All power tools shall be inspected, tested, and determined to be in safe operating condition before use. Continued periodic inspections shall be made to assure safe operating condition and proper maintenance.

Hand and power tools shall be in good repair and with all required safety devices installed and properly adjusted. Tools having defects that will impair their strength or render them unsafe shall be removed from service.

When tools are not in use they shall be stored to the manufacturers recommendations.

Appropriate PPE shall be worn while using hand and power tools.

5.11 Motor vehicles

Every worker operating a motor vehicle shall be fully trained in the operation and maintenance of the vehicle.

Before initial use, vehicles shall be inspected by a qualified mechanic and found in safe operating condition. The inspection shall be documented in writing and available for inspection on the worksite.

Inspections, tests, maintenance, and repairs shall be conducted by a qualified person and in accordance with the manufacturer's recommendations. This inspection shall be documented on a checklist.

The following list shows all items that must be checked prior to each use, but not more than once per day:

- Service brakes, including trailer brake connections;
- Parking system (hand brake);
- Emergency stopping system (brakes);
- Tires;
- Horns;
- Steering mechanism;
- Coupling devices;
- Seat belts;
- Operating controls;
- Safety devices (e.g., backup alarms and lights, fire extinguishers, first aid kits, etc.)
- Accessories including lights, reflectors, windshield wipers, and defrosters where such equipment is necessary.

5.11.1 Machinery and mechanized equipment

Inspections and test shall be in accordance with the manufacturer's instructions.

All machinery or mechanized equipment before it is placed in use shall be inspected and tested to confirm proper operation. The attached form "Machinery" has to be filled out and filed.

All machinery or mechanized equipment shall be inspected on daily base to ensure continued safe operation.

Tests shall be made at the beginning of each shift to determine that the brakes and operating system are in proper working order and that all required safety devices are in place and functional.

Whenever any machinery or mechanized equipment is found to be unsafe or defective it shall be placed out of service, tagged as such and its use prohibited until conditions has been corrected. When corrections have been made, the machinery or mechanized equipment shall be retested and inspected before returning it to service.

No modifications or additions which affect the capacity or safe operation of the machinery or equipment shall be made without the manufacturer's written approval and recertification.

Machinery or mechanized equipment shall be operated only by designated qualified individuals. Driver license, certificates etc. need to be presented to the contractor, copies need to be taken and to be kept for record on site.

Machinery or mechanized equipment shall not be operated in a manner that will endanger persons or property nor shall safe operating speeds or loads exceeded.

Getting off or on machinery while it is in motions is prohibited. The parking brake shall be applied each time before exiting the vehicle. If the vehicle is parked on an incline, chucks shall be used to ensure adequate protection if brakes fail.

The use of cellular phones or headphones for entertainment purposes while operating equipment is prohibited.

5.11.2 Equipment requirements

- Seats or equal protection must be provided for each person required to ride onequipment.
- All self-propelled construction and industrial equipment shall have lights, horns, reverse signal backup warning device and an operational service brake system cable of holding fully loaded equipment on expected grade conditions.
- All vehicles which will be parked or operated moving slowly, shall have yellow flashing light visible from all directions.

5.11.3 Maintenance and repairs

- Maintenance, including preventive maintenance and repairs shall be in accordance with manufacturer's recommendations.
- All machinery or mechanized equipment shall be shut down and positive means taken to prevent its operation while repairs, maintenance, or manual lubrications are being done.
- Heavy machinery, equipment, or parts thereof which are to be suspended or held apart by slings, hoist, or jacks shall be substantially blocked or cribbed before personnel are permitted to work underneath or between them.
- Repairs and corrective maintenance shall only be accomplished by properly trained and designated personnel.

Bulldozer and scraper blades, end-loading buckets, dump bodies and similar equipment shall be either fully lowered or blocked when being repaired or when not in use. All controls shall be set in a neutral position, with the engine stopped and brakes applied, unless work being performed requires otherwise.

Stationary machinery and equipment shall be placed on a firm foundation and secured before being operated.

All mobile equipment and the areas in which they are operated shall be adequately illuminated while work is in progress.

Equipment powered by internal combustion engines shall not be operated in an enclosed area unless adequate positive ventilation is provided to ensure the equipment does not generate a hazardous environment.

Mechanized equipment shall be shut down before and during fueling operations.

All towing devices used on any combination of equipment shall be structurally adequate for the weight drawn and securely mounted.

Personnel shall not work under, pass under or ride in the buckets or booms of loaders in operation.

All machinery and mechanized heavy equipment shall be equipped with at least one dry chemical fire extinguisher with a minimum rating of 5-BC as well as a small 5-person first aid kit.

5.12 Guarding and safety devices

A warning device or signal person shall be provided where danger is or is to expect danger to persons from moving equipment, swinging loads, buckets, booms, etc.

All belts, gears, pulleys, sprockets, spindles, drums, flywheels, chains, or other reciprocating, rotating or moving parts of equipment shall be guarded when exposed to personnel or create a hazard.

All hot surfaces of equipment shall be protected by guards or insulated to prevent injury and fires.

Platforms, foot walks, steps, handholds, guardrails and toe boards provided by the manufacturer shall be designed, constructed, and maintained to provide safe footing and access way for the operator.

Substantial overhead protection shall be provided for the operators of fork lifts, loaders and similar material handling equipment.

Tires shall be mounted, dismounted, inflated by properly trained, designated personnel.

No guard, safety appliance, or device shall be removed from machinery or equipment, or made ineffective unless done so during maintenance periods. All guards, safety appliance, or devices shall be fully operational after such periods.

Suitable protection against the elements, falling or flying objects, swinging loads and similar hazards shall be provided for operators of all machinery or equipment. All glass used in equipment shall be a safety glass style.

All bulldozers, tractors, or similar equipment used in clearing operations shall be provided with guards, canopies, or grills to protect operator from falling or flying objects as appropriate to the nature of the clearing operations.

Falling object protective structures for other construction, industrial, and grounds-keeping equipment will be furnished when the operator is exposed to falling object hazards.

In addition to seat belts and falling object protection, Rollover Protective Structures shall be installed on:

- Crawler and rubber tire tractors, bulldozers, front-loaders, back-hoes
- Off-the-highway self-propelled pneumatic tired earth movers; trucks, scrapers, end dumps and bottom dumps
- Motor graders, compactors, rollers
- Water tank trucks

5.13 Pressurized equipment and systems

Pressurized equipment and systems shall be inspected and performance tested before being placed in service and after any repair or modification. Spare parts have to be approved by the producer or assigned service provider.

Inspections, tests and operations will be performed by qualified personnel and according to producers recommended or designed inspection periods.

Inspections, tests and operations shall be recorded in an equipment log book.

Any pressurized equipment or system found to be in an unsafe operating condition shall be tagged "OUT OF SERVICE – DO NOT USE" at the controls and its use shall be prohibited until the unsafe conditions have been corrected by qualified personnel or service provider.

The normal operating pressure of pressurized equipment and systems shall not exceed the design pressure. If so, the equipment has to be taken out of service. The safe conditions have to additional being checked by qualified personnel.

No safety appliance or device shall be removed or made ineffective, except for making immediate repairs or adjustments (if so, only after the pressure has been relieved and the power shut off to avoid hazardous situations).

5.14 Compressed air and gas systems

Compressors and related equipment shall be located to provide safe access to all parts of the equipment for operation, maintenance, and repairs.

Safety appliances, such as valves, indicating devices, and controlling devices, shall be constructed, located, and installed so that they cannot be readily rendered inoperative by any means.

Air hose, pipes, valves, filters, and other fittings shall be pressure rated by the manufacturer and this pressure shall not be exceeded. Defective hose shall be removed from service.

5.15 Boilers and systems

Inspections shall be made to assure that all safety devices affecting operation of the firing equipment are installed in such a location that they cannot be isolated from the heat source by the closing of a valve.

Boilers that have undergone major structural repairs or that have been relocated during the 12 calendar months for which certification has been made shall be re-inspected and a new certificate posted before being put into operation.

When any boiler is being placed in service or restored to service after repairs to control circuits or safety devices, an operator shall be in constant attendance until controls have functioned through several cycles and equipment has been fully placed in service.

5.16 Compressed gas cylinders

Compressed gas cylinders shall be inspected by a qualified person prior to bringing on site. The cylinders shall be stored in well-ventilated locations.

- Cylinders containing the same gas shall be stored in segregated group and the ones empty shall be labeled as empty and stored in the same manner.
- Cylinders in storage shall be separated from flammable or combustible liquids and from easily ignitable materials by at least 12.1 m or by a fire resistive partition having at least 1-hour rating.
- Cylinders containing oxygen or oxidizing gases shall be separated from cylinders in storage containing fuel gases by at least 6m or by a fire resistive partition having at least a 1-hour rating.
- Areas containing hazardous gas in storage shall be appropriately placarded.

Smoking shall be prohibited wherever cylinders are stored, handled or used.

Cylinders shall be protected from physical damage, electric current, and extremes of temperature. The temperature of cylinders shall not be allowed to exceed 130 °F (54.4 °C).

Cylinders shall be refilled only by qualified persons.

Oxygen and fuel gas pressure regulators, including their related gauges, shall be in proper working order while in use.

5.17 Safe access and fall protection

Safe access shall be provided to all work areas.

Where there is a horizontal or vertical break of 48.2 cm or more in a route of access, a stairway, ladder, ramp, or personnel hoist shall be provided.

When a structure has only one means of access between levels, that access shall be kept clear to permit free passage of workers. If work is performed in an area that restricts free passage, a second means of access shall be provided.

The width of access ways shall be determined by the purpose for which they are built and shall be sufficient to provide safe passage for supplying materials and movement of personnel. Except for ladders, in no case shall the width be less than 45.7 cm

Lumber shall be reasonably straight-grained and free of shakes, checks, splits, cross grains, unsound knots or knots in groups, decay and growth characteristics, or any other condition that will decrease the strength of the material.

Supporting members and foundations shall be of sufficient size and strength to safely distribute loading.

Supporting members shall be placed on a firm, smooth foundation that will prevent lateral displacement.

Unstable objects such as barrels, boxes, loose bricks, or concrete blocks shall not be used as supports.

Vertical members (e.g., poles, legs, or uprights) shall be plumb and securely braced to prevent swaying or displacement.

Access ways shall be inspected daily and maintained in a safe manner.

Access ways shall be kept free of ice, snow, grease, mud, debris or any other material or equipment that could obstruct passage, cause a tripping hazard, or render them unsafe in any other way.

Where access ways are slippery, abrasive material shall be used to assure safe footing.

Access ways, including their accessories that become damaged or weakened shall not be used until they are repaired or replaced.

When it is necessary to move platforms to the next level, the old platform shall be left undisturbed until the new bearers have been set to receive the platform planks.

5.17.1 Fall protection

Workers exposed to fall hazards shall be protected by standard guardrail, catch platforms, temporary floors, safety nets, personal fall protection devices, or the equivalent, in the following situations:

- on access ways (excluding ladders), work platforms, or walking/working surfaces from which they may fall 1.8m or more;
- on access ways or work platforms over water, machinery, or dangerous operations;
- on runways from which they may fall 1.2 m or more;

Every stairway and ladder way floor opening shall be guarded on all exposed sides, except the entrance opening, by securely anchored standard guardrail.

Entrance openings shall be offset or provided with a gate to prevent anyone walking into the opening.

5.17.2 Railings

- Timber Top rails shall be of at least 5 cm x 10 cm timber.
- Timber Mid rails shall be at least 2.5 cm x 15.2 cm timber.
- Timber Posts shall be at least 5cm x 10.1 cm timber spaced not to exceed 2.4 m on centers.
- Pipe Top rails and mid rails shall be at least 3.8 cm nominal diameter.
- Pipes Posts shall be at least 3.8 cm nominal diameter spaced not more than 2.4 m on centers.
- Structural Steel Top rails and mid rails shall be at least 5 cm x 5 cm x 0.9 cm angles.
- Structural Steel Posts shall be at least 5 cm x 5 cm x 0.9 cm angles spaced not more than 2.4 m on centers.
- Guardrail systems shall be so surfaced as to prevent injury to an employee from punctures or lacerations and to prevent snagging of clothing.

5.17.3 Top rails and mid rails

- Mid rails shall be halfway between the top rails and the floor, platform, runway, or ramp.
- The ends of the top rails and mid rails shall not overhang the terminal posts except where such overhang does not create a projection hazard.
- Synthetic or natural fiber ropes or wire shall not be used as top rails or mid rails. Wire rope may be used as top rails or mid rails if

5.17.4 Toe boards

Definition: board placed around a platform or on a sloping roof to prevent personnel or materials from falling off.

- Timber Toe boards shall be 2.5 cm x 10 cm
- Toe boards shall be securely fastened in place and have not more than 0.6 cm clearance above floored level.
- Toe boards shall be made of any substantial material, either solid or with openings not greater than 1 in (2.5 cm) in greatest dimension.

5.17.5 Ladders

All portable ladders shall be of sufficient length and shall be placed so that workers will not stretch or assume a hazardous position.

5.17.6 Work platforms

Except for works which can be done safely from the ground or similar footing, scaffolds, platforms, or temporary floors shall be provided for all work.

Ladders may be used as work platforms only when use of small hand tools or handling of light material is involved.

5.17.7 Scaffolds

Important note:

All scaffolding/work platforms shall be fixed by experienced personnel. All adjustments to the scaffoldings shall be carried out by the same personnel.

Capacities:

- Scaffold and their components shall be capable of supporting without failure at least 4 times the maximum anticipated load.
- Scaffold system components that are subjected to a bending moment (such as outrigger beams with suspended scaffold and counterweights) shall be capable of providing a resisting moment of at least four times the tipping moment.
- Scaffolds shall be plumb and level.
- Scaffolds (other than suspended scaffolds) shall bear on base plates upon mudsills or other adequate foundation.
- Working levels of work platforms shall be fully planked or decked.

5.17.8 Planking

- All planking of platforms shall be either overlapped (minimum 30.4 cm) or secured from movement.
- Scaffold planks shall extend over their end supports not less 15.2 cm
- Planking shall be supported or braced to prevent excessive spring or deflection and secured and supported to prevent loosening, tipping, or displacement.
- When a scaffold materially changes its direction, the platform planks shall be laid to prevent tipping.
- Work platforms shall be securely fastened to the scaffold.
- An access ladder or equivalent safe access shall be provided.
- Climbing of braces shall be prohibited.
- When the scaffold height exceeds four times the minimum scaffold base dimension (and including the width added by outriggers, if used), the scaffold shall be secured to the wall or structure.
- Vertical ties shall be repeated at intervals not greater than 7.9 m with the top tie placed no lower than four times the base dimension from the top of the scaffold.

- Horizontal ties shall be placed at each end and at intervals not greater than 9.1 m.

5.17.9 Floor and wall openings

All floor and roof openings into which persons can accidentally walk or fall through shall be guarded by a physical barrier or covered.

All floor and roof holes through which equipment, materials, or debris can fall shall be covered.

Coverings for floor and roof openings shall be of sufficient strength to support any load that may be imposed and shall be secured in place to prevent accidental removal or displacement.

Wall openings, from which there is a drop of more than 1.2 m and the bottom of the opening is less than 0.9 m above the working surface shall be guarded with a top rail or a top rail and intermediate rail or a standard guardrail. A toe board or enclosing screen shall be provided where the bottom of the wall opening, regardless of width, is less than 4 in 10.1 cm above the working surface.

Every hatchway and chute floor opening shall be guarded by a hinged floor-opening cover.

5.18 Excavations

Prior to excavation, underground installations (e.g., sewer, communication lines, water, fuel, electric lines) shall be located and protected from damage or displacement. Utility companies and other responsible authorities shall be contacted to locate and mark the locations and, if they so desire, direct or assist with protecting the underground installations. No mechanical excavation (hand dig only) shall be carried out in close proximity to known services.

If during or after excavation a situation exists that that could result in possible collapse, exposed workers shall be removed from the hazard and all work in the excavation stopped until all necessary safety precautions have been implemented.

The sides of all excavations in which employees are exposed to danger from moving ground shall be guarded by a support system, sloping or benching of the ground, or other equivalent means.

Shoring shall be used for unstable soil or depths greater than 1.5 m unless benching, lay-back, or other another acceptable plan is implemented by the Contractor.

Except in stable rock, excavations below the level of the base of footing of any foundation or retaining wall shall not be permitted.

Workers shall be protected (by scaling, ice removal, benching, barricading, rock bolting, wire mesh, or other means) from loose rock or soil that could create a hazard by falling from the excavation wall: special attention shall be given to slopes that may be adversely affected by weather, moisture content, or vibration.

Materials, such as boulders or stumps, that may slide or roll into the excavation shall be removed or made safe.

Excavated material shall be placed at least 0.6 m from the edge of an excavation or shall be retained by devices that are sufficient to prevent the materials from falling into the excavation. In all circumstances, all material(s) shall be placed at a distance to prevent excessive loading on the face of the excavation.

Protection shall be provided to prevent personnel, vehicles, and equipment from falling into excavations.

Excavations shall be backfilled as soon as possible.

Walkways or bridges with standard guardrails shall be provided where people or equipment are required or permitted to cross over excavations.

Where personnel are required to enter excavations over 1.2 m in depth, sufficient stairs, ramps, or ladders shall be provided.

At least two means of exit shall be provided for personnel working in excavations.

Sloping and Benching

For excavations less than 6 m in height, the maximum slope shall be 34° measured from the horizontal (1-1/2 horizontal to 1 vertical).

5.19 Traffic control

Measures shall be taken to insure adequate signage and temporary barriers (cones, barrels, etc.) are in place to inform drivers of traffic diversions around and through construction sites. The Contractor shall also provide personnel on site to direct traffic around and through construction sites in an orderly and safe manner.

In case where roadways leading into or through a designated construction site and it won't be possible to be closed for public use, the necessary traffic signs to inform the public of existing hazards to safety.

5.20 Control signage

It is the intent of this Plan that any persons approaching the construction site or entering a designated construction area be fully informed and aware of:

- the presence and location of construction operations
- the hazard associated with such operations
- the prohibitive aspects of proceeding into the construction zone

Control signage shall acquaint persons approaching the site and inform to the location where permission to enter may be obtained.

5.21 Access authorization

All persons other than PO Engineers, Construction Supervision Engineers, construction staff members and contractor direct-hire personnel, are considered "visitors " to the construction site and MUST obtain written authorization to enter designated area.

Neither Contractor representative nor her authorized representative shall unreasonably withhold approval to enter the construction site once it is established that:

- applicant has a legitimate purpose for being on site
- applicant is fully aware of Site Rules of Conduct

In NO case will an Approving Authority grant access unless the applicant has acknowledged in writing that he/ she fully understands the site Rules of Conduct.

The access Authorization form, once Approved, shall remain in possession of and on file with the on-site Contractor's representative.

As a condition of obtaining Access Authorization, visitors to the MCIIP construction site must have received proper indoctrination on the Site Rules of Conduct and must be abide by these rules at all times while on site.

While obtaining the Entry Permit, visitor may also receive special instructions relative to that day's construction operations and precautions which the visitor should exercise during his/ her visit.

Persons on site, who have not granted an Entry Permit, should be escorted off the site. Should they refuse to leave, law enforcement should be contacted the local police. Under no circumstance should force be used to remove an intruder from the construction site except by a law enforcement agent.

6 Natural disaster preparedness plan

6.1 Purpose

The purpose of this plan is to avoid and minimize personal injuries which might be a possibly result from any natural disasters.

6.2 Scope

Severe weather phenomena known to occur occasionally in the vicinity of CHEF Project:

- Thunderstorm
- Lightning
- Flooding, reference to EIA Report.

6.3 Alerting agencies

Weather alert radio with back-up battery

6.4 Alerting systems

- The Contractors Engineers confirms status with Construction Supervision Engineers, site offices, security and medics.
- Contractors Project Managers confirm status with Site Engineers
- Contractor alert their employees and subcontractors

6.5 Action plan by contractor

- Must initiate and maintain an up-to-date program of actions to be taken by their people and subcontractors and visitors at the time of a natural disaster. This should include communications, protections, evacuations and training.
- Must develop and disseminate to their people an action plan for each structure occupied. This must include security, car pool, evacuation routing, shelters and communication.
- Maintains Incident command
- Conduct preparedness drill as appropriate

7 Annexes

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Annex 1: Weekly Safety Assessment

(To be filled out weekly)

Date of Inspection		
Project Name		
Project N°		
Contractor		
Location		
Item	Yes	No
Health and Safety manual Available on Site?		
Date of last safety Meeting	Date:	
First Aid equipment stocked and accessible?		
Are work site injury records being kept?		
Is new personnel in H&S introduced?		
Are emergency telephone numbers available?		
Is the Emergency information form posted?		
Are the site offices secured?		
Access roads secured and signs?		
Is waste regularly disposed in the correct means?		
Passageways and Walkways safe?		
Sanitary facilities adequate and clean?		
Adequate supply of water?		
Electrical equipment, cords and plugs in good condition?		
Firefighting equipment in good working available and in good condition?		
Site Personnel Using Appropriate PPE?		
Are hazardous materials stored appropriately?		
Is the site adequately illuminated where required?		
Are suitable hand and power tools being used?		
Are Excavations protected according to the Safety Manual?		

If “NO” describe in below table!

Describe Violations – Location – Measures Taken

Annex 3: Fall Prevention/Access/Work Platforms

Date of Inspection			
Project Name			
Project N°			
Contractor			
Location			
Item	Yes	No	
Are safe accesses in place throughout the work area?			
Are the correct members in access ways being used as per the safety manual?			
Are safe protection measures in place to prevent falling as per the safety manual?			
Are scaffolds constructed as per the safety manual?			

Describe Violation - Location - Remedy Taken

Contractor Representative	Signature	Date
Construction Supervision	Signature	Date

Annex 4: Specific Safety Incident Report Platforms

Date of Inspection/ Incident	
Project Name	
Project N°	
Contractor	
Location	

Describe:

1) Violation

2) Recommendation for immediate action

3) Recommendation for future prevention

Contractor Representative	Signature	Date
Construction Supervision	Signature	Date