SAĞANAK ENERJİ

SAGANAK ENERJI YATIRIM URETIM VE TICARET A.S.

KANDIRA WIND POWER PLANT

OCCUPATIONAL HEALTH AND SAFETY MANAGEMENT PLAN

DECEMBER 2020

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REVISION HISTORY

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ABBREVIATIONS

ACM	Asbestos Containing Materials
AED	Automatic External Defibrillator
AIIB	Asian Infrastructure Investment Bank
CTDs	Cumulative trauma disorders
dB	Decibel
E&H	Environmental and Health
EHS	Environmental, Health, and Safety
EKAT	Electrical Power Plant Certificate
EMF	Electric and magnetic field
EPRC	Emergency Preparedness and Response Coordinator
EPRT	Emergency Preparedness and Response Team
ESF	Environmental and Social Framework
ESS	Environmental and Social Standards
HAV	Hand arm vibration
HLL	Horizontal life line
HSE-Q	Health, Safety, and Environment - Quality
IFC	International Finance Corporation
IR	Infrared
LOTO	Lock-out tag-out
MSD	Musculoskeletal disorder
MSDS	Material Safety Data Sheet
OHS	Occupational Health and Safety
OJT	On-the-job training
Plan or EPRP	Emergency Preparedness and Response Plan
PPE	Personal Protective Equipment
Project	Kandira Wind Power Plant
PSs	Performance Standards
RMIs	Repetitive motion injuries
RSIs	Repetitive stress or repetitive strain injuries
Saganak or Project Owner	Saganak Enerji Yatirim Uretim ve Ticaret A.S.
SGK	Social Security Institution
UV	Ultraviolet
WBV	Whole body vibration
WPP	Wind Power Plant

1. PURPOSE AND SCOPE

Kandira Wind Power Plant (WPP), ("the Project") acknowledges the importance of health, and safety of the employers for the construction and operation phases of the Project and the Occupational Health and Safety (OHS) Plan provides instructions and guidance to eliminate and/or control the risks and impacts that may arise from project-related activities.

1.1 Purpose

The general purpose of the OHS Management Plan ("the Plan" or "OHSMP") is:

- Assessing and reducing/eliminating OHS risks and impacts on all related parties (employees, third parties etc.) of the work during construction and operation phases,
- Complying with local legislation, requirements of International Finance Corporation (IFC), requirements of Asian Infrastructure and Investment Bank (AIIB) and international best practice procedures.
- Planning necessary actions due to local and international laws, regulations and standards,
- Monitoring performance indicators,
- Sustaining continuous improvement of OHS management at the site.

1.2 Scope

OHS Plan ensures work safety and minimizes risks on employers arising from work related activities. These measures are applicable to all Project personnel, subcontractor personnel and the public (including any governmental authority or similar site visitors) and covers both construction and operation phases.

This Plan will be updated as and when necessary. The scope of the Plan includes following aspects:

- Legislative requirements and standards
- Roles and responsibilities
- Provisions/measures regarding general facility design and operation
- Provisions/measures regarding physical hazards
- Provisions/measures regarding chemical hazards
- Provisions/measures regarding biological hazards
- Provisions/measures regarding radiological hazards
- Provisions/measures regarding personal protective equipment (PPE)
- Provisions/measures regarding special hazard environments
- Monitoring and reporting
- Training of personnel regarding OHSMP issues.
- Review and update

2. LEGISLATIVE REQUIREMENTS AND STANDARDS

2.1 National Legislation

In the scope of the Kandira WPP, Turkish Legislation that the Project will comply with is provided below:

- Occupational Health and Safety Law No. 6331
- Labor Law No. 4857
- Regulation on Duties, Authority and Responsibilities of Occupational Physicians and Other Health Personnel
- Regulation on Risk Assessment of Health and Safety
- Regulation on Occupational Health and Safety Services
- Regulation on Occupational Health and Safety Signs
- Regulation on Emergency Situations in the Workplaces
- Regulation on Occupational Hygiene Measurement, Testing and Analysis Laboratories
- Regulation on Principles and Procedures for Occupational Health and Safety Training of Employees
- Regulation on Health and Safety Measures to be taken in Workplace Buildings and Annexes
- Regulation on the Health and Safety Conditions on the Use of Work Equipment
- Regulation on the Occupational Health and Safety Requirements for Construction Sites
- Regulation on the Use of Personal Protective Equipment at Workplaces
- Regulation on the Occupational Health and Safety Requirements for Temporary or Fixed-Term Employment
- Regulation on the Occupational Health and Safety in Construction Works
- Regulation on the Protection of Workers from Risks Related to Noise
- Regulation on Safety and Health in Working with Chemical Substances
- Regulation on the Protection of Workers against Exposure to Dangerous or Explosive Atmospheres
- Regulation on the Protection of Buildings from Fire
- Regulation on Emergencies in Workplaces
- Regulation on First Aid
- Regulation on the Protection of Employees from Risks About Vibration
- Regulation on Health and Safety Measures in Asbestos Works
- Regulation on Duty, Authority, Responsibility of Occupational Physicians

2.2 International Standards

Applicable IFC and AIIB standards and guideline requirements for OHS management within the scope of Kandira WPP are as follows:

- IFC Performance Standards on Social and Environmental Sustainability;
- IFC General Environmental, Health, and Safety (EHS) Guidelines;
- IFC EHS Guidelines Construction and Decommissioning
- IFC EHS Guidelines: Environmental – Hazardous Materials
- IFC EHS Guidelines for Wind Power Plants; and
- IFC EHS Guidelines for Electric Power Transmission and Distribution.
- AIIB Environmental and Social Framework,
- AIIB Environmental and Social Standards (particularly ESS1).

Mentioned standards and guidelines set a framework to adopt of best guidance for environment, health and safety practices and to address any aspect of project activities, which might have an impact beyond the lifecycle of the Project. Practices across all aspects of the Project operations aim to prevent occupational accidents and minimizing injuries.

3. ROLES AND RESPONSIBILITIES

Managing Director

- Owner and confirmatory of this plan
- Ensures sufficient and qualified resources are allocated on an ongoing basis to achieve effective implementation of this Plan
- Controls and confirms the objectives related with this Plan.

Project Manager

- Develops, implements, circulates and maintains this Plan.
- Provides sufficient resources to implement the requirements of this Plan.

Construction/Operation Manager

- Complies fully with applicable requirements of this Plan.
- Reports to the Project Manager issues impacting on the implementation of this Plan.
- Ensures that the contractors are fulfilling their noise related contractual obligations and reports any nonconformity to Project Manager.

HSE-Q Expert

- Ensures that this Plan is implemented and updated.
- Ensures that the activities in the construction site are carried out in accordance with this Plan and the legal requirements.
- Updates risk assessment reports and conducts internal audits to determine whether measures are implemented or not.
- Participates in incident investigation and reporting studies.
- Ensures that the legal authorities are informed within the framework of legal requirements.
- Consults with the HSE-Q Expert regarding unsafe conditions, incidents, or changes in site conditions or the scope of work.
- Ensures Accident/Incident report procedures are followed.
- Contributes to the implementation of precautions related to environment, health, safety objectives.
- Checks whether this plan fits with the project standards and other agreements or not
- Operator of this plan and controls the contractors' application.
- Gives Plan-related training to employees.
- Performs routine inspections.
- After the identification of the deficiencies / mistakes by contractors in the implementation of this plan, transmits the situation in writing form to the contractors and gives the necessary technical support to take relevant measures.
- Follows the field applications.
- Researches the situation and reports properly.
- Prepares the statistics / performance reports.
- Investigates all relevant incidents and reports to the Construction/Operation Manager
- Identifies the necessary actions for environmental complaints.

Occupational Physician

- Contributes to the implementation of health precautions related to environment, health, safety objectives.

- Conducts health training of the related personnel on the topics covered by this Plan.
- Performs routine health examinations.
- Investigates all relevant incidents and reports to the HSE-Q Expert.
- Cooperates with the HSE-Q Expert to develop, monitor and review the Plan, when necessary.

Engineers and Responsible Technical Personnel

- Responsible to the Construction/Operation Manager for the implementation of the provisions of this Plan regarding the activities performed in their area of responsibility.

Employees

- Reports to their supervisor for on-site activities.
- Ensures that work parties must comprise at least two people
- Obliged not to be harmed by the work they perform and not to harm other people around them.
- Obliged to safely complete on-site tasks required to fulfil the work plan.
- Attends and participates in weekly safety meetings.
- Notifies their supervisor and HSE-Q Expert on suspected unsafe conditions.
- Reports all incidents to HSE-Q Expert.

Contractors

- Ensures compliance with the Project-specific OHS management approach in accordance with the contractual requirements.
- Ensures sufficient and qualified resources are allocated on an ongoing basis to achieve effective implementation of this Plan.
- Ensures the effective implementation of this Plan by issuing its own procedures addressing, detailing and customizing specific actions, measures and monitoring activities under contractors' responsibility.
- Provides relevant monitoring data and monitoring reports to Saganak as required.
- Stipulates Saganak's policies and standards to any subcontractor for duly implementing requirements.

Employee's Representative

- Has the same responsibilities as general employees for their core duties.
- Obliged to receive information provided by employees and to convey it to the OHS Board and Construction/Operation Manager.
- Conveys the decisions made by OHS Board and/or Project management to employees.
- A head representative should be selected if there is more than one employee's representative.
- Participates in OHS Board, conveys the opinions of employees to OHS Board and decisions of OHS Board to employees.
- Attends to the specific training performed for him/her.
- Informs his/her chief, OHS-Q Expert, occupational physician or OHS Board Members about the risks.

Visitors

- Visitors will comply with, so far as they are reasonably able, all reasonable safety directions provided by Saganak
- Take reasonable care for their own health and safety and for the health and safety of others.
- Report all incidents to the Project personnel
- Ensure the adequate supervision of any accompanying children

4. HAZARD MANAGEMENT

4.1 Occupational Health and Safety Management Approach

OHS management plan provides implementing programs that contribute to mitigating health and safety risks that may arise as a direct or indirect result of The Project. By implementing the guidelines provided in this Plan, it is aimed to mitigate the risks arises from the work including construction and operation phases of The Project.

Following issues are specified the OHSMP's main approach:

- To identify and control occupational hazards and to eliminate OHS risks.
- To ensure taking all necessary actions suggested in laws/regulations/standards to prevent any OHS incident.
- To ensure third parties (contractors, visitors, suppliers etc.) understand and comply with site safety rules.
- To raise OHS awareness of all employees and third parties by providing suitable and adequate site safety information, training and instructions.
- To ensure implementation of *Emergency Preparedness and Response Plan* during the construction and operation of The Project.
- To ensure minimization or elimination of risks regarding points of entry and exit to the site.
- To raise OHS awareness of employees and third parties regarding working at height risks.
- To ensure taking actions regarding risks associated with falling object hazards.
- To ensure taking actions regarding excavation work that will be carried out at the workplace.
- To raise OHS awareness of employees and third parties regarding risks associated with confined spaces.
- To raise OHS awareness of employees and third parties regarding risks associated with working alone.
- To raise OHS awareness of employees and third parties regarding risks associated with working in remote sites.
- To raise OHS awareness of employees and third parties regarding risks associated with lifting operations.
- To ensure qualification (necessary training, licenses, permits etc.) of high risk personnel.
- To ensure taking actions for the security of the Project site regarding unauthorized access and community encroachment.
- To raise driving safety awareness of employees and to ensure the compliance of safe driving provisions for all vehicles.
- To ensure compliance of all standards established in Turkish legislation.
- To ensure prevention of adverse impacts of chemicals/waste on human health and the environment.
- To raise OHS awareness of employees and third parties who use, store or transport hazardous materials/wastes.
- To ensure measures for fire and provide training to all personnel about emergency preparedness and response.
- To ensure the prevention of traffic accidents and promoting traffic safety with all personnel and third parties.
- To ensure compliance with regulations for the transportation of hazardous materials as well as measures for preventing or minimizing the consequences of releases of hazardous materials.

4.2 General Facility Design and Operation

4.2.1 General Site Rules

The general site rules that apply for all employees of the Project Owner, including employees of contractors, and all related personnel from third parties are presented in this section. General site rules include brief information about site emergency preparedness and response plan, emergency contacts, map(s) with permission marks and all other necessary information. General site rules will be shared with all employees and third parties. Other than that:

- An emergency eyewash unit shall be located at the administrative building.
- All on-site activities will be conducted during daylight hours. If work after dusk becomes necessary adequate lighting must be provided.
- Hazardous work, such as handling hazardous materials and heavy loads, and equipment operation, etc. should not be conducted during severe storms.
- All temporary electrical power must have a ground fault circuit interrupter (GFCI) as part of its circuit if the circuit is not part of permanent wiring. All equipment must be suitable and approved for the class of hazard present.

4.2.2 Incident Reporting

- All occupational injuries/illnesses, vehicle accidents, and near miss incidents must be reported promptly to the HSE-Q Expert and Construction/Operation Manager and investigated.

4.2.3 Weekly Safety Meetings

- Weekly safety meetings will be held at a date to be determined.
- Contractors and subcontractors are required to attend all tailgate meetings.
- Employees must attend weekly safety meetings.

4.2.4 Safety Inspections

- Weekly safety meetings will be held at a date to be determined.
- The site supervisor, with assistance from the HSE-Q Expert, will inspect the site as appropriate and interview one or two site workers regarding areas of safety concerns or ideas for safety improvement.
- Any personnel who identify safety and occupational health deficiencies and will bring them to the attention of their supervisor and HSE-Q Expert and will suggest corrective measures.
- Formal safety review inspections will be conducted as needed and recorded and filed for reference by the Project management. These inspections will be shared by the Construction/Operation Manager and HSE-Q Expert. Contractor supervisory personnel will be asked to participate in inspections.
- Any deficiencies in the effectiveness of this Plan will be immediately brought to the attention to the HSE-Q Expert and corrected.

4.2.5 Underground/Utility Line Contact

- Colour codes and their corresponders are given as yellow; gas, oil or petroleum, red; electric, orange; television, telephone, communication, blue; potable water, green; sanitary sewer, storm sewer.
- Construction/Operation Manager should be contacted to have utility lines marked prior to excavation/trenching or drilling.

- Private utility locating service should be hired for mark outs on private property. Site drawings or customer interviews provide assistance but should not be solely relied upon.
- Hand dig, probe or geophysical methods should be applied near the utility marker to avoid breaking subsurface structures.

4.2.6 Overhead Utility Line Contact

- Maintaining appropriate distance from overhead utilities:
  - Maintaining at least 3 meter distance from overhead power lines, up to 50 kV.
  - If voltage is unknown, remaining at least 6 meter distance from overhead power lines.
- Conducting daily site inspection to determine where activities will take place and the location of overhead utilities and overhead obstructions. Once identified, placing warning tapes on poles and/or guy wires and attempting to plan the work so that no contact will be made with the overhead utilities or obstructions. The information will be shared with all site personnel. HSE-Q Expert will perform the daily site inspection.
- As a precaution, a spotter will be used at all times during the maintenance phase when near overhead utilities or overhead obstructions. If contact is deemed unavoidable, consultation should be done with HSE-Q Executive to evaluate the area to determine if the particular overhead utility or obstruction can be removed prior to engaging in the activity.
- If equipment accidentally comes into contact with an energized overhead line, the equipment operator should stay inside the equipment until the line can be safely de-energized. If the equipment operator must evacuate the equipment (for example, due to fire), he must jump from the equipment and not make contact with the equipment and the ground at the same time.

4.2.7 Site Entrance

All entries to The Project area are subject to the security personnel's supervision to ensure that all entries are carried out in accordance with the health and safety system and to prevent unauthorized access. The HSE-Q Expert conducts necessary training for security personnel to meet both legislative and international standards.

4.2.8 Smoking

It is strictly forbidden to smoke in the construction sites, in the plant and offices. There will be designated open-air areas for smoking and smoking is only allowed in these areas. Employees smoking other than designated areas are warned in written form and fined according to the warning sign placed in accordance with the Law No. 4207.

4.2.9 Parking in Plant Area

For parking, only designated areas shall be used in plant area. Parking shall be reverse and in the direction of exit. It is forbidden to park in front of fire extinguishers or hydrants, waste storage areas and emergency exits. Suppliers and contractors that will cause road closure due to temporary parking or work will inform the Construction/Operation Manager a day in advance of the initiation of the work. Construction/Operation Manager takes the necessary measures and informs the entire plant personnel.

4.2.10 Construction Machinery and Trucks

- Back-up alarms of construction machinery and trucks shall be operational.
- All vehicles shall have a fire extinguisher.
- All vehicles shall have a first aid kit.
- If there is no sight during manoeuvres, a banksman shall be present.
- It is forbidden to dump for trucks and reverse manoeuvre for construction machinery without a banksman.
- Permissions shall be obtained for road closure and all departments shall be noticed.
- Personnel/human transportation with non-passenger vehicles is forbidden.
- Speed limit in the site is 30 km/h.
- Compliance with the speed limits in the special places in the site shall be ensured.
- Workers must wear gloves while attaching support members to protect against pinching injuries.
- While working from elevated levels greater than four feet, ensure that all employees have 100% fall protection i.e. full body harnesses or guardrails.
- Workers do not stand under loads that are being raised or lowered with cranes.
- The subcontractor must conduct pre-operational inspections of all equipment. In addition, daily inspections should be conducted on the equipment prior to site activities.
- Employees should always stay out of the swing radius of all heavy equipment. Also, employees should always use a spotter during movement of equipment. The spotter and others, as appropriate, shall maintain constant communication with the operator.
- All operators must have adequate training and be qualified to operate the particular heavy equipment unit.
- Site evaluation should be conducted to determine proper positioning for the unit. Making sure surface is level. Cordon off holes, drop-offs, bumps or weak ground surfaces.
- Equipment used must have functioning back-up alarms.
- Cab glass will not be cracked or otherwise damaged.

4.2.11 Industrial Hygiene

- Industrial hygiene training shall be included in general OHS training for all employees and further training, awareness sessions etc. shall be organized by workplace/company doctor to raise industrial hygiene awareness.
- Eating in the plant site is forbidden. Only designated areas shall be used for eating purposes. Cafeteria(s)/dining hall(s) shall be kept clean and all personnel works in cafeterias and dining halls should be examined by workplace/company doctor to prevent and disease.
- Restrooms shall be cleaned, and soap and tissue dispensers shall be refilled on a daily basis.
- Working environment (in terms of dust, noise, lighting, temperature, airflow & quality, etc.) should be adjusted according to related regulations and measurements should be completed according to Regulation on Occupational Hygiene Measurement, Testing and Analysis Laboratories.
- Shower(s) shall be available for employees who might need.

4.2.12 Working Hours

In the all phases of the Project, the working hours shall be in accordance with the legal work and overtime hours stated in the Labor Law No. 4857. Working hours can be shortened and additional required resting hours can be provided to workers as a result of risk assessments and exposure to a hazardous situation.

Under extreme conditions such as exposure to ultraviolet radiation and extreme hot, cold and humid environments, special working hour arrangements are made to prevent health risks of employees.

Work and rest periods for activities performed in confined spaces, in gaseous, dusty or noisy areas are determined and implemented by work-specific risk assessments.

4.2.13 Office Works

- Office floors shall be cleaned at times when there are no employees around. If it is not ensured, necessary warning signs shall be placed indicating the floor is slippery.
- Deteriorations on the office floors shall be repaired immediately after detection.
- Shelves and other materials on the wall shall be fixed.
- All stairs shall be coated with non-slip materials or strips. All stairs shall be equipped with handrails.
- All cleaners and other employees using cleaning chemicals shall be equipped with necessary PPE and informed about Material Safety Data Sheets MSDSs of the chemicals they use.
- Cleaning chemicals shall not be mixed with each other and stored according to their Material Safety Data Sheets (MSDSs).
- Offices shall be regularly ventilated.
- Air conditioning devices shall be regularly controlled according to industrial hygiene necessities (Regulation on Occupational Hygiene Measurement, Testing and Analysis Laboratories).
- Sufficient lighting (500 lux) shall be provided in all areas.
- Electrical equipment shall be checked and labelled with colour codes in every three months by the electricians.
- Residual current device shall be connected to main electrical distribution panel.
- Electrical distribution panels and fuse boxes are kept locked, labelled, and prevented from unauthorized use.
- Offices shall be equipped with detectors and fire extinguishers against fire hazard.
- Emergency exit doors and roads are set at least 80 cm in length.
- All employees shall be trained on office ergonomics during the induction training.
- Employees who are exposed to workplace violence, retaliation, mobbing or any types of discrimination shall be encouraged to report the situation as stated in the Grievance Procedure.

4.2.14 Housekeeping

Employees shall be informed during all phases of the Project by training of all levels starting from the induction training that the major sources of hazards are negligence of keeping the site clean and tidy. Employees who are not working in a clean and tidy way (including contractors) shall be warned and their work shall be stopped until proper cleaning is ensured. Some of the consequences of lack of cleanliness and tidiness might be:

- Trip and fall hazards: Materials and equipment left on the floor can cause trip and fall of an employee. The result can be bone fractures and severe injury. If trip and fall is happened in a higher place without fall protection equipment, the incident may result with fatality.
- Drop of a Material: Materials left in higher places may fall down and cause injuries.
- Hygiene: Non-clean areas threaten employee health. Biological risks that may arise in the site are also assessed in this context and are tried to be avoided. All employees should wash their hands regularly, especially prior to eating and drinking.

All wastes generated in the site shall be stored in the designated waste storage areas, by segregating according to their type. Waste management implementations are specified in Waste Management Plan for all phases of The Project.

4.2.15 Storage Conditions

The measures to ensure safe storage conditions both in the construction phase and in the operation phase are defined under this section.

- Spare parts and material storage
  - Spare parts and materials shall be stored in designated areas.
  - Maximum stacking height shall be 3 m.
  - Spare parts shall be stored by considering their availability in the market and storage conditions.
  - Heavy materials shall be stored on lower shelves while lighter ones on the higher shelves as a measure against falling.
- Chemical storage
  - Chemicals shall be stored according to their hazardousness classifications and MSDSs.
  - All chemicals shall be ordered according to need and stored according to MSDSs. Bulk buying and storage should not be allowed.
  - In the storage of gas cylinders, these issues are taken into consideration:
    - Separate and fixed storage of empty and full cylinders,
    - Availability of caps,
    - Storage in ventilated and protected areas,
    - Storage vertically and on their hand trucks.

4.2.16 Emergency Preparedness and Response

Please refer to Emergency Preparedness and Response Plan. Mitigation measures for emergency response are briefly given below:

- Emergency scenarios shall be identified and emergency preparedness and response plans with the allocation of responsibilities to local communities and authorities (where appropriate) shall be developed.
- First Aid training will be covered and provided according to related legislation.
- Specific stakeholder engagement plan based on consultation and participation with government and communities regarding the nature and potential consequences of the project related risks shall be developed.
- Train personnel to respond to emergencies in accordance with the requirements outlined in the specifications.
- Emergency drills shall be conducted in a frequency and format according to Regulation on Emergencies in Workplaces.
- Findings and lessons learnt from drills should be evaluated and relevant corrective actions shall be taken and shared with all relevant parties (workers, worker representatives, OHS committee and management).

4.2.17 Colour Codes

Colour codes shall be used for all phases of the Project. The colour codes shall be given after the completion of inspections/checks/control. The colour codes are presented in Table 1.

Table 1 Colour Codes

Period	Colour Code
December-February	White
March-May	Green
June-August	Blue
September-November	Yellow

4.3 Physical Hazards

In the scope of Kandira WPP, identified risk issues and related procedures and measures for both the construction and operation phases of the Project are presented below.

4.3.1 Noise

In the construction & operation phases of Kandira WPP, noise sources include machinery and equipment and units (e.g. turbine generators, boilers, pumps, compressors, condensers, wind turbine spinning, construction and lifting vehicles, construction works) and these equipment units can be listed as noise sources.

Mitigation measures for reducing noise both in the construction and operation phases are provided below. In addition, measures to prevent minimize and control occupational noise exposures are presented.

- Equipment shall be selected with lower sound power levels.
- Silencers shall be installed for fans.
- Suitable mufflers shall be installed on engine exhausts and compressor components.
- Acoustic barriers without gaps shall be installed to minimize transmission of sound through the barrier.
- High noise areas will be identified and marked and personnel will wear personal noise protecting gears all the time when working in such high noise areas. (areas with noise levels >85 dB(A))
- Noise barriers such as berms and vegetation shall be used to limit ambient noise at plant property lines where sensitive receptors may exist.
- Structures shall be selected according to their noise isolation effects.
- Generators will be designed to meet the applicable occupational noise levels.
- Sound insulated control rooms with noise levels below limit values set by related regulations shall be met.
- No employee shall be exposed to a noise level greater than 85 dB(A) for a duration of more than 8 hours per day without hearing protection.
- The grievance mechanism shall be used effectively.

4.3.2 Vibration

Hand arm vibration (HAV)

HAV is caused by regular exposure to high levels of vibration from hand held tools and equipment. It could also be caused by holding materials in contact with grinding or cutting operations.

HAV can affect workers who use power tools and cutting equipment such as:

- Grinders
- Polishers
- Strimmer

- Chainsaws
- Power drills
- Road breakers

The vibration transmitted from the tools or materials to the hands and arms could damage sensory nerves, muscles and joints which is called hand arm vibration syndrome (HAVS).

Vibration White Finger

This is a condition caused by damage to the circulatory system in the hands and fingers as a result of contact with vibrating tools. The symptoms are:

- Tingling
- Numbness
- Whitening appearance to the fingers

After the attack, the fingers affected may become painful, red and throbbing as the circulation returns.

These symptoms may become more severe and frequent with continued exposure to vibration, especially in cold weather. This can eventually lead to permanent disability.

Whole Body Vibration

Whole body vibration is caused by sitting, standing or lying on a vibrating surface. This could lead to:

- Headaches
- Motion sickness
- Chronic back pain
- Stomach problems
- Sleep and visual disturbances

Using vehicles off road increases the risk of jolts and jarring. For this reason, employees that drive or operate heavy plant and vehicles such as construction plant, agricultural machines and quarry vehicles are especially at risk.

Vibration transmitted through the feet can also be a problem for employees that stand on the platforms of stationary plant such as rock crushers.

Precautions to Reduce Vibration

If vibration cannot be eliminated, early reporting of symptoms by employees shall be encouraged and processes and procedures to minimise exposure should be altered. For example:

- Select lower vibration tools and equipment.
- Supply protective clothing to keep employees warm and dry.
- Replace old, high vibrating tools and equipment with new, low vibrating ones.
- Implement task rotation and time limits on activities with high exposure levels.
- Ensure that equipment is right for the job, well maintained and in good condition.
- Provide information and train employees in tool maintenance and usage, for example make sure they avoid gripping the tool too tightly.

Reducing Whole Body Vibration (WBV)

Where WBV is an issue in vehicles;

- Fit suspension seats or use vehicles with suspended driver's cabs.
- Make sure vehicles are well maintained, including suspension systems.
- Check driving seats to ensure that they are well sprung and give adequate support.
- Provide information and advice on safe posture, sitting position and use of vehicles and machinery.
- Fix damping material to floor panels and other vibrating surfaces to reduce engine vibration transferred to the operator.
- Choose a suitable vehicle for the ground conditions and activity, selecting appropriate tires that are inflated to the correct pressure for the job.

For operators who have to stand while operating vibrating machinery;

- Mount fixed machinery on anti-vibration mounts.
- Use rubber mats and provide shoes with thick rubber soles.
- Operate the machine remotely from a vibration free area where possible.

Job design and planning

Reducing the amount of time that employees use equipment is a simple way of limiting exposure. For example:

- Use pre-form openings in concrete to avoid the need for core-cutting.
- Use special formwork or treat poured concrete to avoid the need for scabbing.
- Use a guillotine to cut metal accurately to remove the need for trimming with a grinder.
- Talk to designers during the planning phase to reduce the need for excessive cuts on site.

4.3.3 Electrical Works

Recommended measures to prevent minimize and control electrical hazards at the plant are presented:

- All energized electrical devices and lines shall be marked with warning signs.
- Devices shall be locked-out and tagged-out (LOTO) during service and maintenance.
- LOTO awareness/induction training should be provided by HSE-Q Expert before the work.
- All electrical cords, cables, and hand power tools for worn-out or exposed cords and manufacturer recommendations for the maximum permitted operating voltage of the portable hand tools shall be checked.
- Power cords and extension cords shall be protected against damage from traffic by shielding or suspending above traffic areas.
- Only approved extension cords shall be used.
- No approach zones around or under high voltage power lines shall be established.
- Rubber tired construction or other vehicles that come into direct contact with, or arching between high voltage wires shall be taken out of service for periods of 48 hours and the tires shall be replaced to prevent catastrophic tire and wheel assembly failure potentially causing serious injury or death.
- Detailed identification shall be conducted and all buried electrical wiring before any excavation work shall be marked.

- Power supplied to the site will only come from an electricity distributor's main, an existing switchboard permanently installed at the premises, a compliant low voltage generator, and a compliant inverter.
- Flexible cords to be used on construction site will be rated as heavy duty.
- Green sheathed flexible power cords shall not be used on the site to avoid confusion with individual grounding conductors.
- Flexible cords shall be either protected by a suitable enclosure or barrier or located, where protected from mechanical damage, damaged by liquids or high temperature.
- Cords shall not exceed the maximum length stated in the related regulations.
- Hazard warning lights shall be installed inside electrical equipment enclosures to warn of inadvertent energization.
- Appropriate labelling of service rooms housing high voltage equipment ("electrical hazard") and where entry is controlled or prohibited shall be ensured.
- Voltage sensors shall be used before and during workers' entrance into enclosures containing electrical components.
- Specialized electrical safety training shall be given to those personnel working with or around exposed components of electric circuits. This training should include, but not be limited to, training in basic electrical theory, proper safe work procedures, hazard awareness and identification, proper use of PPE, proper LOTO procedures, first aid and proper rescue procedures.
- Deactivation and proper grounding of live power equipment and distribution lines according to applicable legislation and guidelines whenever possible before work shall be performed on or proximal to them.

Electrical Works Procedure

In the scope of Kandira WPP, procedure for electrical works is presented below:

- Electrical works shall be performed by authorized electricians.
- Electricity distribution shall be carried out by electrical panels and distribution between panels shall be provided by undamaged cables.
- Electrical panels shall have a residual current device and the panel shall be periodically checked and controls shall be recorded on the control label on the panel.
- Electrical equipment shall only be repaired by electricians.
- Wet electrical equipment shall not be used without the control of electrician.
- Working near high voltage requires work permits.
- Working with high voltage line shall be performed with the presence of an EKAT (Electrical Power Plant Certificate) certified supervisor.
- The grounding in the site shall be ensured per the relevant legislation. Grounding is needed for:
  - All transformers
  - Lightning rod
  - Surge arresters
  - Poles
  - Cables
  - Panels
  - Buildings and auxiliaries
  - Containers
- Ground resistance shall be measured around the lightning rod.
- Automatic External Defibrillator (AED) shall be present to use as an emergency response against electric shocks.
- The dangers of electricity shall be explained to all employees
- Electrical cables shall not pass through puddles. Cables needed to pass through the water shall have water resistance certificate.

4.3.4 Electrical Equipment and Hand Tools

In the scope of the Project, mitigation measures for electrical equipment and use of hand tools are presented below:

- Electrical hand tools shall be inspected by a qualified electrician every three months.
- Electrical hand tools shall be inspected by worker any time before starting the work.
- Electrical equipment that does not have a control mark on it shall not be used.
- Electrical equipment shall be used by trained personnel per the manufacturer's instructions.
- Protective parts of any electrical hand tool shall not be removed.
- If the electric hand tool is sparkling, it shall be used with Hot Work Permit or in the general permitted area.
- After the completion of work, electrical hand tools shall be kept with pulling their plug out to prevent trip and falls.
- When the work with electrical hand tool is finished, it shall be returned to workshop or its storage place.
- The employee that will use the electrical hand tool shall be trained and have the capacity to manage the tool.
- Worn tools are dangerous and shouldn't be used: e.g., the "teeth" in a pipe wrench can slip if worn smooth; an adjustable wrench will slip if the jaws are sprung; hammer heads can fly off loose handles.
- Tools subject to impact (chisels, star drills, and caulking irons) tend to "mushroom." Therefore, they should be dressed to avoid flying spalls and tool holders should be used.
- Tools shouldn't be forced beyond their capacity and no "homemade" handles or extensions (cheaters) are permitted.
- Flying objects that can result from operating almost any power tool, therefore, people in the vicinity should be warned and proper eye protection will be used.
- Each power tool should be examined before use for damaged parts, loose fittings, and frayed or cut electric cords.

4.3.5 Eye Hazards

Hazards are discussed in physical, chemical, biological hazards and PPE sections. Eye hazards will also be assessed in details in Risk Assessment Plans.

4.3.6 Hot Works

In the scope of the Project; welding, cutting, grinding, and post-weld heat treatment works are considered as hot works. The measures defined to minimize the hot works-related risks are as follows:

- Hot work requires work permit.
- Work permit might be given to specific employees with necessary training, licenses or certificates. Risks of the work or related risk assessments should be read and understood by employees who are going to involve hot work.
- Minimum OHS requirements to start a hot work are:
  - Work permit
  - Approved fire work equipment (Calibrated or inspected before work)
  - Fire extinguisher or fire extinguishing system
  - Fire blanket
  - Fire observe, if necessary
  - Hot work specific PPE according to related risk assessments.
- The hot work area shall be free of any flammables and explosives.
- The area shall not be left before cooling.

- Radiographic testing of welds shall be considered as very hazardous work and it shall be also subject to work permit. A special procedure shall be constituted and implemented. During radiographic testing, an area of 30 m radius from the testing point shall be closed to any other works. Testing team's all legal documents and certificates shall be verified during permitting.
- Cutting and welding equipment to be used shall be in safe operating condition and in good repair.
- Where practical, all combustible material shall be relocated at least 15 meter horizontally from the work site. Where relocation is impractical, combustibles shall be protected with flame-proofed covers or otherwise shielded.
- Flammable liquids should be removed from the area.
- Workers should wear proper personal protective equipment.
- Minimum two full charged and operable type ABC fire extinguisher should present.
- Fire watchers shall be required whenever hot work is performed. They will watch the area for 30 minutes after work is performed and follow up check after two hours has passed.

4.3.7 Ice Hazards

Icing conditions are arguably one of the most hazardous situations encountered on the WPP. Ice falling from the tower has the potential to be fatal and to cause serious damage to equipment underneath the tower. In case of icing observation:

- Workers should stay clear of the tower, especially in the downwind direction.
- No ice existence on the blades/tower should be verified with binoculars.
- If it is night time, daylight should be waited to verify. No one should approach to the tower at night if there is no certainty about ice accumulation.

4.3.8 Industrial Vehicle Driving and Site Traffic

General principles to be followed on the traffic and traffic-related subjects are as follows:

- Unauthorized vehicle entry into the Project Area is forbidden.
- All drivers shall know and comply with the Highway Traffic Regulation.
- Pedestrian walkways should be marked and kept clear.
- Legal driving license is compulsory for all. There shall be no substitute document.
- For pickups and heavier vehicle, obtaining and driving with SRC certificate is mandatory.
- All construction vehicle operators must have SRC certificate.
- Off-site speed limit is determined by law and it is compulsory to comply with these limits for all employees, including the employees of subcontractors.
- It is forbidden to drive under the influence of alcohol and/or drugs.
- The speed limit in The Project site is 30 km/h.
- Drivers and passengers shall fasten the seat belts. Seat belts shall be fastened before driving and cannot be unfasten until the vehicle is properly parked.
- Regular and legal maintenance of the vehicles shall be performed according to the manufacturer's requirements. Vehicle maintenance shall be followed-up by Administrative Affairs Department.
- The materials that should be kept in the vehicles shall be controlled prior to vehicle usage and these materials are:
  - First-aid kit
  - Fire extinguisher
  - Reflector
  - Spare Tire
- It is forbidden to overload the vehicles. Even if the vehicle tonnage is appropriate, it will affect the driving safety and creates a risk of overturning during windy conditions.

- The headlights, mirrors, windows and seat belt system of the vehicles shall be operational. The vehicles that have problems in these systems are immediately sent for the maintenance.
- Pickup and heavier vehicles shall have working back-up alarms. If not working, these vehicles shall not be used in the site.
- Passengers shall not be transported on the back of a pickup and heavier vehicles.
- Tires shall be controlled regularly. Vehicles with unsuitable tires shall not be taken into to the plant site.
- Smoking is prohibited on vehicles.
- Cell phone usage is prohibited on vehicles.

4.3.9 Working with Construction Machinery

The measures to be taken when working with or around the construction machinery are as follows:

- Construction machinery shall be accepted to the site according to site entry rules.
- Pedestrian walkways should be marked and kept clear.
- The accepted machinery shall take vehicle entrance card.
- Daily and periodic maintenance of construction machinery shall be ensured and shared with HSE-Q Expert and the operator shall perform a visual check before each use.
- General rules for operators:
  - Operators shall have a valid operator license.
  - Operators shall have induction training.
  - Operator shall visually control his/her construction machinery from top and bottom.
  - Operator shall check any leakages such as oil, engine fluids, accumulator etc.
  - Operator shall check engine, gearbox, hydraulic oil and radiator fluid levels.
  - Operator shall check the pallets/tires, bolts, pins etc. whether they are broken or not.
  - Operator shall be sure there is nobody around the work area and work with the guidance of flagman.
  - Operator shall start the engine while parking brake is set.
  - Operator shall check all the displays while the engine is warming up for 2-3 minutes.
  - Operator shall control all the lights before night work.
  - Operator shall not work if his/her view is blocked or continue to work with one or more flagmen.
  - Operator shall not use cell phone while using the machinery.
  - Helmet usage is not obligatory for closed cabin machinery, but the operator shall use safety shoes and reflector vests.
  - Operator shall pay attention to power lines. If there is a risk of contact, energy shall be cut-off first.
  - At the end of the work, the operator shall also control the machine surroundings and park the machine at a safe location. If there are malfunctions or areas to improve, the operator shall inform the next shift's operator.
  - When the work is finished, the operator shall turn off the engine and lock and secure the machinery.
  - The operator shall not let an unauthorized employee to use the machinery.
- General rules for employees;
  - Employees must be aware of the hazards and dangers of nearby working machines before starting the work.
  - All employees shall use reflective vests/work clothes
  - Pedestrian walkways should be used. The construction machinery's work area shall not be used as a shortcut.
  - Employees shall have the eye contact with the operator during works they perform nearby the machinery in motion.
- Refuelling of construction machinery shall be carried out in designated areas.
- Construction machinery shall not reverse without a flagman.

- Passengers shall not be transported in the construction machinery cabinets.
- Working under power lines is subject to Work Permit.
- If the construction machinery contacts a power line, the operator shall
  - Request help without leaving the machine, unless machinery has burning risk.
  - Not let anyone to approach or touch the machinery.
  - Jump out of the machinery without touching the metal parts and move away from the scene by jumping, if fire has already started.

4.3.10 Working Environment Temperature

Mitigation measures for prevention and control of occupational exposure to heat occurring during operation and maintenance of combustion units, pipes and related hot equipment are presented below:

- Pressure vessels and piping shall be inspected and maintained regularly.
- Adequate ventilation shall be supplied to the work areas to reduce heat and humidity.
- The time required for work in elevated temperature environments shall be reduced and access to drinking water shall be ensured.
- Surfaces where personnel come in close contact with hot equipment, including generating equipment, pipes etc. shall be shielded.
- Warning signs and PPE as appropriate including insulated gloves and shoes shall be used near high temperature surfaces.

4.3.11 Ergonomics

Abbreviations

CTDs: Cumulative trauma disorders

RSIs: Repetitive stress or repetitive strain injuries

RMIs: Repetitive motion injuries

MSD: Musculoskeletal disorder

Responsibilities

Management (Managers and Supervisors)

Responsibilities of all managers and supervisors will include:

- Accountability for the health and safety of all employees within their departments; allocating human and/or financial resources;
- Ensuring that employees are provided with and use the appropriate tools, equipment, parts, and materials;
- Ensuring that ergonomics practices and principles are considered when conducting worksite evaluations and design;
- Ensuring that recommended controls are implemented and/or used appropriately through active follow-up;
- Responding promptly to employee reports; and providing appropriate workers' compensation documentation to employees as required by all regulations.

Personnel

Responsibilities of personnel will include:

- When provided, use the appropriate tools, equipment, parts, materials, and procedures in the manner established by managers and supervisors;
- Ensure that equipment is properly maintained in good condition and when not, report it immediately;
- Provide feedback to supervisors regarding the effectiveness of design changes, new tools or equipment, or other interventions;
- Attend ergonomics training as required and apply the knowledge and skills acquired to actual jobs, tasks, processes, and work activities;
- Report MSD signs or symptoms and work-related MSD hazards to the supervisor as early as possible to facilitate medical treatment and initiate proactive interventions, and; take responsibility in their personal health and safety.

Environmental Health and Safety (HSE-Q Expert)

Responsibilities of HSE-Q Expert include providing support upon request to Management and Personnel by:

- Providing general training;
- Conducting workstation evaluations;
- Providing resources recommending equipment or solutions;
- Updating risk assessments according to changes and incidents;
- Tracking injuries, taking corrective actions.

Worksite Evaluations

Triggers for a worksite evaluation:

- When an employee reports an MSD sign or symptom.
- Jobs, processes, or work activities where work-related ergonomic risk factors have been identified which may cause or aggravate existing MSDs.
- Any change of jobs, tasks, equipment, tools, processes, scheduling, or changes in work shift hours (for example, going from a traditional 5-day, 8-hour shift to a compressed 4-day, 10-hour shift).
- When a safety walk-through or scheduled inspection or survey has uncovered potential MSD hazards.

Work-related risk factors to be considered in the evaluation process include, but are not limited to:

- Physical risk factors including force, postures (awkward and static), static loading and sustained exertion, fatigue, repetition, contact stress, extreme temperatures, and vibration.
- Administrative issues including job rotation/enlargement, inadequate staffing, excessive overtime, inadequate or lack of rest breaks, stress from deadlines, lack of training, work pace, work methods, and psychosocial issues.
- Environmental risk factors including noise, lighting, glare, air quality, temperature, humidity, and personal protective equipment and clothing.
- Combination of risk factors such as, but not limited to, highly repetitive, forceful work with no job rotation or precision work done in a dimly lit room.

Setting Priorities and Worksite Evaluations Method

Worksite evaluations will be scheduled based upon the following:

- Any job, process, operation, or workstation which has contributed to a worker's current MSD;
- A job, process, operation, or workstation that has historically contributed to MSDs; and
- Specific jobs, processes, operations, or workstations that have the potential to cause MSDs.

Various methods will be used to evaluate problem jobs including:

- Walk-through and observations
- Employee interviews
- Checklists
- Worksite evaluations

Control of the Ergonomic Risk Factors

To identify ergonomic risk factors and reduce hazards by using a four-tier hierarchy of control (in order of preference):

Engineering controls: The most reliable means to of controlling or preventing injury. This is achieved by focusing on the physical modifications of jobs, workstations, tools, equipment, or processes.

Administrative controls: This means controlling or preventing injury by implementing administrative changes such as job rotation, job enlargement, rest/recovery breaks, work pace adjustment, redesign of methods, and worker education.

Work Practice controls: This means controlling or preventing injury through proper work practices. These include proper work techniques, posture and conditioning.

PPE: Although PPE should not take the place of other controls, PPE can control or prevent injury by the use of equipment. This can include kneepads and anti-vibration gloves.

4.3.12 Working at Heights

When employees work from a level difference and the possibility of injury as a result of falling; considered as working at height. Working means while traveling, stationary, or at any time exposed to a fall from a surface not protected by approved handrails, guardrails, or some other approved fall arrest or restraint device. The potential fall hazard distance is measured from the employee's feet to the walking and working surface below.

Fall prevention planning should begin during the design phase whenever possible. Even when the design phase is complete, many engineering controls are still feasible. Fall hazard control measures should be initiated in the following order.

4.3.13 Fall Elimination – Eliminate work at elevation by:

- Performing work on the ground,
- Attaching guardrail protection to forms and work platforms while on the ground,
- Attaching fall arrest systems to formwork or other structural components before erection,
- Using ground release devices to disconnect rigging from the ground, or
- Maximizing the pre-assembly of formwork, structural steel, and other components.

Design Safety and Engineering Controls "Design-out or Engineer-out" fall hazards:

- Review project drawings and interface with fabricators and material suppliers to design safety features into the structure, material, or equipment to be used.
- Maximize use of prefabricated modular units.
- Add stairways and platforms that can be used for access both during construction and maintenance operations.
- Design attachment points for guardrail systems, stanchions, or self-retracting lifelines that can be attached on the ground and provide protection for the first person to access the elevation.

Fall Prevention Prevent falls from elevation by using:

- Guardrail systems,
- Scaffolds,
- Aerial lifts,
- Skylight/scuttle guarding,
- Fall restraint, and
- Hole/Floor covers,

Fall Protection

Protect employees when they fall by the use of fall arrest systems.

- Fall protection systems/equipment used to arrest falling employees are the least desirable method of protection because:
    - They only minimize the consequences of a fall rather than prevent its occurrence, and
    - They rely on human behaviour to prevent injury.
- The use of fall protection equipment, such as harnesses, lanyards, anchorage, retractable devices, etc. must be planned in the work activity and used properly to reduce the risk of injury from falling.

Fall Hazard Control

Personnel shall be prevented from falling or protected by a fall arrest system whenever working two meters or more above a lower level. This requirement applies to unprotected sides/edges, leading edges, hoist areas, holes, and floor openings, formwork, and reinforcing steel, excavations, roofing work, pre-cast concrete erection, and other walking/working surfaces not otherwise addressed.

Methods of Fall Prevention and Protection

- Fall hazard control shall be provided in the form of fall prevention systems, which includes guardrail systems, scaffolds, aerial lifts, barricades, and hole covers.
- Fall protection measures include the use of personal fall arrest systems or similar means of fall protection. Emphasis should also be placed on providing protection from falling objects and from slips and trips on the same level.

Planning

Prior to each phase of work, site supervision is responsible for planning fall prevention and fall protection measures to protect employees from fall exposures. The planning effort includes:

- Identifying potential fall hazards,
- Using design safety to eliminate or engineer out fall exposure,
- Determining the appropriate method of protection,
- Supplying anchorage,
- Providing education, training, and enforcement, and
- Arranging for rescue and rescue equipment.

Fall Prevention Methods

Fall prevention is preferred over the use of fall protection devices. Fall prevention methods are described below.

Proper Access

Providing safe access to and from work locations is the first step in preventing falls. This includes planning safe access/egress routes of travel and proper installation and use of:

- Ladders
- Scaffolds,
- Stair Towers,
- Stairways,
- Ramps,
- Backfilling around footers, slabs, and other structures.

Guardrail Protection

Work locations requiring guardrail protection include:

- Elevated work platforms such as formwork,
- Scaffolds,
- Openings/holes in decks, floors, roofs, and slabs,
- Unprotected sides of ramps, stairs, platforms, roofs,
- Leading edges,
- Elevator shaft openings,
- Ladder way, skylight, manhole, and trap door openings.

Fall Prevention System Requirements

Guardrail Systems

- Guardrail systems shall be so surfaced to prevent injury from punctures or lacerations and to prevent snagging of clothes.
- The ends of top rails and mid-rails shall not overhang the terminal posts, except where such projection does not constitute a projection hazard.
- Guardrail systems used around holes and horizontal wall openings shall be erected on all unprotected sides and edges of holes.
- Guardrail systems used on ramps and runways shall be erected along each unprotected side or edge.

- Guardrail systems shall be used around holes, which are points of access, such as ladder ways. Every ladder way floor opening or platform shall be guarded by a standard guardrail system including toe boards on all exposed sides, except at the entrance to the opening. The passage through the railing shall either be provided with a swing gate or barrier or offset such that a person cannot walk directly into the opening.
- Guardrail installation should occur as work progresses.
- Plan inspections for damage and proper construction and immediately replace damaged guardrails.

Top-Rails

- Top-rail height must be 105 cm plus or minus 5 cm above the walking and/or working surface.
- Guardrail systems shall be capable of withstanding, without failure a force of 125 kg applied within 5 cm of the top edge in any direction.
- When the 125 kg is applied in a downward direction to the top edge of the guardrail, it shall not deflect to a height less than 100 cm above the walking or working level.

Mid-Rails

- Mid-rails, screens, mesh, intermediate vertical members or equivalent intermediate structural members shall be installed between the top edge of the guardrail system and the walking/working and when there is no wall or parapet wall at least 50 cm high.
- Mid-rails when used shall be installed at a location midway between the top edge of the guardrail system and the walking or working level.
- Screens and mesh when used shall extend from the top-rail to the walking/working level and along the complete opening between top-rail supports.
- Mid-rails, screens, mesh intermediate vertical members or equivalent structural members shall be able to withstand a force of at least 70 kg applied in any direction.
- Intermediate vertical members when used between posts shall not be more than 47 cm apart.

Toe boards

Falling object protection is provided by toe boards, or screens on guardrail systems. Toe boards shall be:

- Erected along the edge of the overhead walking/working surface for a distance sufficient to protect employees below
- Capable of withstanding, without failure, a force of 15 kg applied in any direction.
- A minimum of 15 cm in vertical height.
- No more than 0.5 cm above the walking and/or working surface.
- Solid or have openings not more than 2.5 cm in greatest dimension
- Where tools, material, equipment are piled higher than the top edge of a toe board, panelling or screening shall be erected from the walking/working surface to the top of the guardrail systems top or mid-rail for a distance sufficient to protect employees below.

Covers for Opening and Holes

- All covers, including those covers located in roadways, shall be capable of supporting at least twice the weight of employees, equipment, and material that may be imposed on the cover at any one time.
- Covers shall be secured to prevent accidental displacement by cleating the underside, tying the cover to grating, or other means to prevent accidental displacement.
- Covers shall be color coded, or marked with the word “hole” or “cover”.

- Identify openings and holes. Holes are defined as a gap or void 5 centimeters or more in at least one dimension in a floor, roof, or walking, and working surface.
- Install protection as soon as an opening is created.
- Immediately replace covers, which have been removed or damaged.
- Perform regular inspection and proper maintenance.
- Use fall arrest equipment when working near unprotected openings.

Elevated Equipment

Employees are required to be tied-off 100% of the time when operating:

- Aerial lifts and scissor lifts.
- Crane suspended personnel work platforms. Use of this equipment is limited and governed by applicable regulations and should only be used as a last resort. Use of a crane suspended personnel work platform requires prior authorization by the Construction/Operation Manager (or designee).

Housekeeping

- Keep walking and working areas free of debris, material, and equipment.
- Enforce daily clean-up of work areas.
- Provide a sufficient number of trash containers for clean-up.

Fall Prevention and Fall Arrest Systems

The primary function of a fall arrest system is to minimize the consequences of a fall rather than prevent its occurrence. Fall arrest systems provide complete and continuous fall protection while accessing and working at elevation. A complete fall arrest system includes the proper anchorage, body support (harness), and connecting device (lanyards/lifelines) interconnected and properly rigged to arrest a free fall. Fall arrest systems must be installed and used in accordance with the manufacturer's recommendations and under the supervision of a Qualified Person. Refer to regulation on Occupational Health and Safety in Construction Works.

Fall Protection Equipment Requirements

General Requirements

- Any equipment that is used as part of a fall protection system must be specifically designed for use as part of a fall protection system and must be used according to the manufacturer's recommendations.
- In hot-work operations or those involving chemicals or other factors that could cause damage, fall protection equipment must be designed and/or protected to avoid burning or deterioration.
- All components of personal protection, i.e., harnesses, lanyards, anchorage, lifelines, and connectors must meet the manufacturer and local regulatory requirements.

Anchorage

Anchorage planning is the key to designing fall arrest systems. Anchorage requirements include:

- Strength – capable of supporting 2,200 kg per employee or twice the anticipated force and designed by a Qualified Person.

- Independence – anchorages must be independent of the work platform, guardrail system, or surfaces/structures supporting employees.
- Location – anchorages should be located overhead to minimize free fall distance. Minimum height policy for most lanyard anchorage is shoulder level, and overhead anchorage locations for both retractable devices and rope grab lifelines. When anchorage is below shoulder level, a Qualified Person shall determine what changes if any need to be made to the fall arrest system such as shorter lanyards, additional shock absorbing capability, etc.
- Sufficient fall clearance – calculate the total fall distance to ensure anchorage height is sufficient to prevent collision with the ground. Also, ensure lateral movement from fixed anchorage does not create a swing fall hazard.
- Identification – anchorage points should be pre-planned and clearly identified to employees.

Full Body Harness

- Full-body harnesses must also be worn and properly anchored when employees are working from aerial lifts, scissor lifts, suspended work platforms, suspended scaffolds, and similar equipment.
- Full-body harnesses must fit and be worn properly with the straps tucked so as not to be caught on equipment or otherwise cause a hazard. Chest straps must be worn between the chest and collarbone and the rear D-ring being worn between the shoulder blades.
- Body belts are not allowed for fall arrest.

Snap Hooks

- Only self-closing, self-locking snap hooks are allowed for fall protection use.
- Snap hooks must open and close properly and be fully closed around their anchorage point.
- Locking mechanisms shall be functionally checked before each use.

Shock Absorbers (Deceleration Devices)

- Are a required component of an overall fall protection system.
- Minimize loads experienced by anchorage and personnel.

Lanyards

- Always use the shortest possible lanyard length.
- Lanyards shall be anchored at a location to limit the free fall distance to no more than six feet.
- Lanyards must be used with a shock absorber unless the fall distance is shortened enough to limit the fall force to 800 kg.
- Lanyards must be maintained free of knots.
- No more than one employee may be attached to the same lanyard.
- Dual or “Y” lanyards may be required to achieve 100% fall protection in some work situations.
- When not in use, the lanyard must be secured in a fashion as to not cause a tripping hazard or become entangled in equipment.
- Flexible steel cable lanyards shall not be used by personnel performing work on or in close proximity to electrical equipment. A non-conductive lanyard must be used.

Retractable Devices and Self-Retracting Lifelines

- Retractable devices are designed to arrest a fall within 0.6 m.
- Locking mechanism must be tested before each use.
- Lifeline must be pulled out and inspected for cuts, fraying, or other signs of damage.
- Use taglines to make the device accessible from the ground.
- Taglines must be used to prevent the uncontrolled retraction of these devices.
- Retractable devices should only be attached to overhead anchorage.
- Retractable devices attached to fixed anchorage must be used with the wearer at less than a 45-degree angle from the device to reduce the hazards of a swing fall.
- Only retractable devices bearing current manufacturer's certification shall be used.

Fall Distance

- A fall protection system must not allow for more than a six-foot free fall.
- The fall protection system must be used and secured in a fashion so that the user cannot contact the next lower level should a fall occur. This requires calculating a clearance distance that includes:
  - Free fall distance,
  - System elongation, e.g., vertical lifeline or in-line energy absorber,
  - Deceleration distance of shock absorbers,
  - Employee height,
  - Deflection in horizontal life line (HLL) system, and
  - A minimum safety factor of 0.6 m.

Rescue

The responsible supervisor must ensure that personnel can be promptly rescued or self-rescue themselves, should a fall occur. The availability of rescue personnel, aerial lifts, ladders, other rescue equipment or rescue services and response time should be evaluated prior to elevated work taking place. Workers should not be allowed to work alone in situations where personal fall protection is required.

Equipment Storage

Fall protection equipment must be stored in a clean dry location away from exposure to abrasive materials, cutting tools, equipment or materials, excessive heat, direct sunlight, and chemicals. Full-body harnesses should be hung by the D-ring for storage.

Inspection

Fall protection equipment must be inspected by the user prior to each use. The relevant supervisor shall ensure a program is in place for inspection of jobsite fall protection equipment by a competent person. Inspections must be conducted at least quarterly, although monthly inspections are preferable. Inspection results must be documented. Some types of fall protection equipment, such as self-retracting lifelines, require periodic re-certification by the manufacturer at scheduled intervals. The Competent Person must be familiar with these requirements and have a documented re-certification performed, as required. The Competent Person shall utilize the specific fall protection equipment manufacturer's inspection instructions and the following information to perform inspections.

Inspection of Harnesses, Lanyards, and Lifelines – Inspections shall evaluate:

- Harnesses, Lanyards and Lifelines, Stitching, Frayed/Broken Strands, Rivets, Burns, Buckles, Cuts, Buckle Tabs, Tears, "D" Rings, Snap Hooks, Rust and Abrasion, Connectors, Burns, Cuts, Tears Corrosion.

Equipment found to be defective must be immediately removed from service, tagged as defective and repaired, or destroyed and replaced.

Inspection Markings

Fall protection equipment, which has been satisfactorily inspected, shall be marked and/or color-coded with vinyl tape or some other secure means to designate current inspection.

Care should be used not to cover any equipment feature/component vital to inspection or performance, such as stitching, grommets, adjusting mechanisms, labels, etc., with the tape or marking means.

4.3.14 Man Basket Applications

- Man basket works require a Work Permit.
- This work shall not be performed without special risk assessment.
- The minimum requirements of a man basket are as follows:
  - The man basket must be manufactured for this purpose and must have CE certificate.
  - The man basket should be inspected and approved by a third party.
  - Maximum allowable load for the man basket must be written on it.
  - Handmade/uncertified man baskets shall not be used in the site.
- Man baskets shall be visually inspected before each use.
- When working with a man basket, a proper way of communication between the operator and the worker on the basket shall be selected.
- When there is a worker on the basket, the operator shall not make free heave and barge.
- When there is a worker on the basket, the operator shall not leave the place. If it is necessary to do so, the operator shall stop the work and bring all the workers down before leaving.
- It is prohibited to leave the basket. If it is necessary to do so, the special risk assessment shall be conducted and workers shall be trained against these risks.
- In the man basket works, four outriggers or stabilizers shall be used and attached to the basket with four locks.
- The testing of the basket, rope and locking system shall be done with a load of five times greater than the payload and by keeping it up for 30 minutes.
- After the completion of work, baskets shall be stored in an appropriate place and outriggers shall not be removed.

4.3.15 Working with Ladders

In the scope of Kandira WPP, general procedure for portable ladders is presented below:

- Handmade ladders are forbidden.
- The ladders shall be checked daily before usage (including spokes).
- The ladders shall be controlled by the maintenance team and tagged with colour codes.
- Ladder steps shall be clean and anti-slide.
- There shall be insulating caps on the ends of the ladders; ladders without caps shall be removed from the site.
- Ladders shall not be considered as working platforms and no work shall be performed on ladders more than 15 minutes.
- Ladders shall be installed at 1:4 and ladder shall be 90 cm longer than the climbed level.
- Last two steps of the ladders shall not be used.

- Damaged ladders or ladders with broken steps shall be removed from site and maintenance team shall be notified.
- When climbing, 3-point rule (two hands and a foot, or two feet and a hand) shall be maintained at all time.
- While climbing and going down, manual handling is forbidden.
- For vertical ladders, a cage is required after 2.5 m length.
- There shall be a resting platform for vertical ladders longer than 4 m.
- Conductive (metal) ladders shall not be used in electrical works and in areas where power lines are present. In such works and areas, fiberglass and nonconductive ladders shall be used.
- The ladders shall not be used in strong windy weathers. Strong wind speed is determined as 12 m/s unless otherwise specified.
- The ladders shall not be placed at door entrances. If it is inevitable to do so, the door shall be locked.
- The ladders shall not be placed on ice or snow. If it is necessary to do so, it shall be fixed.
- The ladders shall not be placed at places where there is active traffic. If it is necessary to do so, appropriate barriers and warning signs shall be placed. This measure must be effective enough to remove vehicle crash risks.
- While there is an employee on the ladder, it is forbidden to change the position or location of it.
- Ladders shall be carried horizontally to minimize the chance of its contact with power lines.
- Ladders shall only be used for their purpose of manufacture. Ladders shall not be used in a horizontal position like a walking platform, bridge, etc.
- For fixed ladders, handrails shall be installed for ladders with more than four steps.
- The cages of all vertical ladders shall be raised by at least 1 meter from the level that is reached by ladders.
- The cages of vertical ladders shall start at least 2200 mm and at most 3000 mm above the ground. Moreover, the inlet diameter (closer to the ground) shall be 10 cm greater than the outlet diameter.
- The cages of vertical ladders shall be at least 70 cm and at most 75 cm away from the ladder.
- There shall be a minimum gap of 18 cm between the steps, and between the ladder and wall (or another fixed part).
- The distance between the steps shall be equal and never exceed 30 cm.
- Vertical ladders longer than 6 meters shall have a resting platform every 6 meters. The width and length of the platform shall not be lower than 70 cm and 100 cm, respectively and it shall have handrails and baseboards.
- The ladder shall be kept oil and grease-free.
- Worn-out or damaged ladders shall not be used.

4.3.16 Excavation Works

Mitigation measures regarding excavation works are presented below:

- Work Permit shall be obtained to establish excavation works.
- Excavation works shall be performed under supervision.
- Excavation equipment shall be checked before use.
- Excavation team shall have training on Excavation Risks.
- Excess excavated material shall be disposed of at least 1 meter away from the excavation area.
- Risk assessment shall be done during the planning of excavation works.
- Building collapse risks arisen during excavations performed around building shall be taken into consideration in the risk assessments.

- If there is a live-line (electricity, gas, steam, etc.) in the excavation area, energy shall be cut off or if it is not required to cut it off, the precautions that should be taken shall be specified by Work Permit.
- Excavation team shall have training on Excavation Risks.
- If vibration will likely to cause subsidence, special precautions shall be taken.
- Depending on the condition of the excavated soil, it shall be strengthened by excavation or lining or by 45 degrees angling, after the opinion of HSE-Q Expert(s).
- Working in the excavated area subjects to Confined Spaces Work Permit.
- For excavations deeper than 5 m:
  - Vehicle operation around the excavation area shall be prohibited.
  - At least two locations shall be determined to go down if it is necessary.
  - The slope of the excavated area shall be checked by the supervisor before going down.
- The excavation area shall be normally closed within the same day. If it is not possible, the excavation area shall be surrounded by barriers and warning lights shall be located for the night.
- Manual excavation shall not be preferred if it is not compulsory due to technical reasons. Excavations deeper than 50 cm shall not be performed manually.
- Special training shall be conducted for workers who will perform manual excavation.
- The working hours of employees are evaluated according to the condition of the ground and the working hours are shortened according to this assessment.

4.3.17 Illumination

In the context of Kandira WPP, measures regarding the illumination of the plant area are provided below:

- Energy-efficient light sources with minimum heat emission shall be used.
- Measures shall be undertaken to eliminate glare/reflections and flickering of lights.
- Precautions shall be taken to minimize and control optical radiation including direct sunlight. Exposure to high-intensity UV and IR radiation and high-intensity visible light shall also be controlled.
- Measurements shall be done according to Regulation on Health and Safety Measures to be taken in Workplace Buildings and Annexes and TS EN 12464-1: 2013.
- Emergency lighting shall be installed to all necessary areas and buildings according Regulation on Protection of Buildings from Fire.

4.3.18 Lifting Operations

In the scope of Kandira WPP, mitigation measures regarding lifting operations are provided below:

- Before lifting machinery and vehicles start to work, they shall be checked by their operators. The steel ropes, chains, hooks, sling, chain blocks, and automatic stoppers shall be checked by authorized technical personnel once a year. This period might be shortened by risk assessments.
- No load will be lifted which exceeds the rated capacity of the crane at the operating boom angle.
- The crane that will be used during lifting operations shall be accepted in accordance with site acceptance rules.
- Minimum requirements of the crane shall be:
  - Crane license (official registration certificate)
  - Periodic maintenance documentation
  - Operation of the detection devices
  - Condition of the operator cabin
  - Presence of at least fire extinguisher and first-aid kit
  - Oil-grease leakage (if there is, the crane shall not be used)
  - Frayed rope and proper wrap of it to drum

  - Lifting equipment coming with crane
- Minimum requirements of the operator shall be:
  - Operator license
  - Insurance of the operator
  - The medical condition of the operator
  - Induction training of the operator
  - PPE usage of the operator
- Before starting the lifting operation, the whole area or the area where the load will travel shall be enclosed with barriers to protect working under the load. If this is not possible, the area shall be controlled by several watchmen.
- Standing under the suspended load is forbidden in any case. If it is necessary to do so, the risks to people must be minimized by safe systems of work and appropriate precautions.
- The lifting shall be performed by tying down the load by a trained rigger.
- Even though the operation can be performed by only one rigger, another rigger with greater experience can be used as superintendent together with several flagmen.
- If the flagmen are more than one, the operator shall follow the only one flagman's instructions and this flagman shall be selected before the operation starts.
- The communication method between the flagman and operator shall be determined before the operation by considering any malfunctions in communication devices. For the lifting with high risks or for human lifting, free heave and barge are forbidden by considering the risk of communication gaps.
- Riggers, flagmen and superintendent shall start to the work as trained in lifting operations. This shall be recorded in the Training Plan.
- The operator will never leave the machine while a load is suspended.
- The operation shall not start without lifting plan and the lifting plan shall be prepared by superintendent or engineer.
- Minimum requirements of the lifting plan:
  - Installation plan of crane(s)
  - Weight of the load
  - Certificates of lifting equipment
  - Required environmental conditions (wind, temperature, etc.)
  - Demonstration of the movement of the load on drawing
  - If more than one installation and gradual lifting is envisaged, more than one drawing is required to demonstrate each installation
- The operation area shall be enclosed with barriers and unauthorized access will be prevented.
- It is important to leave 25% safety margin in lifting accessories.
- Work Permit shall be taken for the lifting operation to be carried out under power lines.
- Lifting accessories shall be controlled and tagged by colour codes in every three months.
- Lifting accessories shall be controlled before each use.
- A buffer shall be placed between the load and the cloth slings.
- The lifting accessories that are found to be unsuitable shall be removed from the site.
- The lifting equipment shall be properly collected and kept in a clean condition.
- All lifting operations shall be performed in accordance with the crane manufacturer's instruction manual.
- The load that will be lifted shall be controlled prior to the operation and a proper configuration according to the load scale shall be selected.
- In the lifting process, the supporting legs of the crane shall be opened as long as there is no other manufacturer advice exists. In that case, a case-specific risk assessment together with a lifting plan shall be performed.
- Under the supporting legs of the crane, manufacturer-approved pads shall be placed. In cases, the pad features are not specified by the manufacturer, 70cm x 70cm pads shall be placed and without placement of pads, no lifting operation shall be performed even on the concrete ground.
- Grounds not suitable for lifting operation shall be enclosed with barriers or other suitable tools and marked. This information shall be shared with the operators.

- If conditional lifting operation is envisaged on a poor bearing ground, the strength of the ground shall be written on the floor.
- Lifting operations shall be carried out at the wind limits allowed by the manufacturer. If there is no such limit, maximum wind limit is assumed as 12 m/s.
- The maximum wind limit is assumed as 7 m/s for materials such as plates where the wind effect will be strong.
- Power will be cut off and all controls locked before the operator leaves the cab.
- The boom will be lowered to the ground when leaving the machine overnight.

4.3.19 Rigging

- Removal activities on standing vessels over 1.5 meter from ground execution will not be conducted during periods when the wind is gusting in excess of 7 m/s.
- Rigging equipment for material handling will be inspected on a daily basis, any equipment determined to be defective will be removed from service.
- Rigging equipment maintenance and use shall be in accordance with manufacturer specifications.
- A positive latching device will be used during hoisting to secure loads.
- Wire rope removed from service due to defects will be marked as unfit for rigging use.
- Safe working loads and classifications of steel wire rope and slings shall be determined by using the manufacturer's rating.

4.3.20 Forklift Operations

- Only qualified personnel may operate a forklift.
- Parking of the forklift will be done with the forks placed on the ground.
- Forklift shouldn't keep running if operator needs to get off.
- Personnel operating forklifts must be certified for the particular forklift they are operating.
- Operators will be responsible to inspect forklift before use.
- All powered industrial trucks must be maintained in safe condition.
- Manufacturer specifications will be followed, and capacities will be adhered to.
- Alarms and other safety features of the forklift must be functioning.
- Forklifts will not be used to hoist personnel unless it is allowed by manufacturer
- Battery charging areas will be well ventilated to prevent buildup of hydrogen gas

4.3.21 Work Permits

Work Permits are required for high-risk works to be performed on the site, especially in the construction phase of the Project. These works are described in the above sections and summarized below:

- Hot works (welding, cutting, grinding and post-weld heat treatment works)
- Radiographic testing of welds
- Works performed near high voltage
- Works performed under power lines
- Excavation works
- Works in confined spaces
- Works at height
- Working alone
- Works performed in man baskets
- Works performed in flammable and explosive environments

General Principles:

- Work permits shall be taken from the supervisor.
- The employee who will perform the work shall make an application by filling the necessary information on the Work Permit Form.
- Forms shall be submitted daily, even if the work has not completed yet.
- The work permit process shall be paused upon the request of the Plant Operator, in cases such as important work, commissioning etc.
- Work permits shall be checked by HSE-Q Expert. It is compulsory to show Work Permit, when asked in these controls.
- The work permit shall be cancelled if the specific conditions stated on the Work Permit are violated.
- All work permits shall be cancelled in case of an emergency. After the emergency ends, employees shall reapply for the work permits.

4.4 Chemical Hazards

4.4.1 Air Quality

Air quality of working environment will be maintained and measured according to related legislations and standards. According to risk assessments of physical, chemical and biological hazards related with air quality will be eliminated and/or reduced at the source. Necessary PPE and training will also be decided according to risk assessments.

Designs and constructions will be done according to related air quality and safety legislations and standards.

4.4.2 Fire and Explosions

Mitigation measures regarding fires and explosions resulting from self-heating fuel piles, ignition of flammable materials and sources are presented:

- Flammables shall be stored away from ignition sources and oxidizing materials.
- Flammables storage area shall be;
  - Remote from entry and exit points into buildings
  - Away from plant ventilation and intakes or vents
  - Have natural or passive floor and ceiling level ventilation and explosion
  - Use spark-proof mixtures
  - Equipped with fire extinguishing devices and self-closing doors and constructed of materials made to withstand flame impingement for a moderate period
- Electrical grounding, spark detection and if needed quenching systems shall be provided where the flammable material is mainly comprised of dust.
- Fire hazard areas shall be defined and labelled to warn of special rules such as prohibition in use of smoking materials, cellular phones, or other potential spark generating equipment.
- Specific worker training in handling of flammable materials and fire prevention and suppression shall be provided.
- Preparedness and Response Plan shall be developed.
- Fire extinguisher equipment (ex. Ladders, ventilation devices, fire extinguishers, etc.) will be purchased and will be kept in good condition.
- Fire extinguisher equipment will be labelled /signed according to related regulations and will be placed at easily accessible locations.
- Fire extinguishers will be placed close to areas that have fire risks such as chemical storage and welding areas.
- Personnel shall not be allowed to interfere with electrical appliances; only authorized personnel will be allowed to change the electrical installation. Electrical appliances will be closed and unplugged when they are not in use.

- Personnel who are responsible for the management of inflammable materials shall be appointed and shall be trained. Storage, transportation, and use of these inflammable will be established in compliance with national and international standards.
- Leakage and spillage of inflammable liquids shall be immediately cleaned and repaired.
- Fire exits and exit doors will be installed in both temporary and permanent structures/buildings and will be kept open all the time.
- A smoking area out of the plant will be designated and a fire extinguisher will be provided for this area.
- Fire practices will be established according to health and safety regulations.
- Static discharge will not be created in flammable atmosphere.
- Electrically bonding and grounding pumps, transfer vessels, tanks, drums, bailers, and probes when moving flammable liquids.
- Vacuum trucks and the tanks they are emptying should electrically bonded and grounded.
- While filling containers, flammable liquids should not be splashed, and they will be poured slowly and carefully.

4.4.3 Working in Flammable and Explosive Environment

- Risk assessment shall be performed before working in flammable and explosive environments.
- Conditions and situations to be aware of when working with flammable liquids:
  - Flammable and explosive liquid storage shelves and barrels shall be earthed against static electricity hazards. Static electricity is the most important fire cause.
  - Hot works such as welding, cutting etc. shall not be performed near flammable and explosive liquids. Special precautions shall be taken when it is necessary to do so.
  - It shall be ensured that there is no spill, leakage etc. where flammable and explosive liquids are present.
  - Fire extinguishers shall be placed to appropriate locations where there is a work with flammable and explosive liquids.
  - Training shall be conducted on the use of fire extinguishers.
  - The storage areas of flammables and explosives shall have ventilation and the area shall be ventilated three times in an hour. The frequency might be increased in special occasions.
  - Flammable and explosive materials shall be stored in their original packages. For small usage quantities, they shall be carried with special safety containers, not in glass or plastic containers.
  - Gasoline and thinner shall not be used in cleaning works. Non-flammable solvents shall be used.
- For environments with explosive gases or where there is a possibility of occurrence, zoning (Zone 0, Zone 1 and Zone 2) shall be made in accordance with the Regulation on the Protection of Workers from Hazards of Explosive Environments.
- Zone 0 and Zone 1 works require Work Permit.
- Zone 0, Zone 1 and Zone 2 equipment shall be selected by considering the zone.
- For the works in Zone 0 and Zone 1, HSE-Q Expert shall be notified prior to work. Then the HSE-Q Expert shall control the equipment, ventilation, labelling and emergency exits.
- In order to continue to work in Zone 0, the zone shall be safe by making it free from the hazardous gas.
- The employees shall be trained on the explosive gases and their potential impacts.
- In order to prevent unauthorized access, area limitations and labelling shall be done.
- Emergency communication numbers shall be placed.

4.4.4 Hazardous Materials

Measures shall be taken to avoid or minimize the potential for occupational exposure to hazardous materials and substances that may be released by the Project. The general approach on the management of hazardous materials is provided in Hazardous Materials Management Plan. Please refer to it when necessary.

Mitigation measures regarding hazardous materials are presented below:

- All hazardous materials shall be assessed in accordance with relevant regulatory and international requirements.
- All chemicals purchased from suppliers used on the site will be accompanied by their MSDSs that meet the standards.
- Storage of fuel will be in tanks equipped with locking devices and which have secondary containment (with %110 volume capacity) that are located on a platform in a designated area located away from any watercourse or drain.
- Spill kits, protective equipment, and other necessary equipment will be available where hazardous materials are handled, to enable any spills to be cleaned up.
- Appropriate first aid will be located close to hazardous material storage areas such as eyewash, showers, and first aid kits.
- Hazardous materials will only be transported in vehicles authorized for the transport of hazardous substances.
- The transfer of hazardous materials from vehicles to storage tanks shall be conducted on impervious hard standing, which is sloped to a collection or a containment structure, not connected to municipal wastewater/storm water collection system.
- Incompatible materials (acids, bases, flammables, oxidizers, reactive chemicals) shall be stored in separate areas, and with containment facilities separating material storage areas.
- The storage and use of hazardous substances shall be done under conditions of maximum security.
- Drummed hazardous materials shall be stored in areas with impervious surfaces that are sloped to retain any spills/leaks.
- Containers holding flammable and/or toxic materials will be kept permanently closed and covered. They shall be kept in their original packaging and they shall be handled and transported under maximum security.
- Any accidental leaks of fuel or oil will be immediately cleaned up with absorbent material and collected in closed and labelled containers - temporarily stored in specially designed spaces until delivery to an operator.
- Chemicals with different hazard symbols shall not be stored together.
- All Hazardous Materials shall be disposed of according to the requirements of relevant regulation.

4.4.5 Gas Cylinders and Chemicals

In the scope of Kandira WPP, mitigation measures developed to be implemented during works with compressed gas cylinders and chemicals are presented below.

Gas Cylinders

- Cylinders shall be kept in vertical position all the time.
- Cylinders shall be stored separately as full or empty and in accordance with their gassiness. The storage areas shall be away from the smoking areas.
- Manual handling of the compressed cylinders shall be forbidden.
- It shall be forbidden to roll full or empty gas cylinders on the ground.
- The flammable gas cylinders shall be stored with 6 m interspaces.

Chemicals

- Working with chemicals shall not be performed without MSDSs.
- MSDS shall be read by the person who assigns the work to workers and he/she shall be sure that it is completely understood.
- A copy of MSDSs should be kept with chemicals in languages that all employees can understand and if it is necessary copies and MSDSs should be shared with workers.
- Special risk assessments shall be performed for working with chemicals.
- The work shall not be initiated without taking the precautions recommended in MSDSs.
- The work shall not be started without ensuring the minimum PPE usage as recommended in MSDSs.
- Areas, containers, pipes and similar installations that contain hazardous chemicals shall be labelled or marked in accordance with the relevant legislation and Chemicals and Hazardous Materials Management Plan in a way that the label shall indicate the chemical and its hazards.
- Containers that will be used for temporary transportation shall be suitable for chemical transportation and shall be labelled. The label shall indicate at least:
  - Name of the chemical
  - Hazard description (corrosive, poisonous, suffocative, irritant, etc.)
  - Pictogram
- Chemicals that are transported to the application area with temporary containers shall be taken back to the Storage Area after the work is finished.
- The environmental hazards of the chemical shall be assessed before the work and proper spill kits shall be placed in the work area.
- Chemical spill drills and training should be repeated at least once in a year.
- For the works performed in confined spaces, the chemicals and the risks shall be indicated in Work Permit.
- The volatilization of the chemical shall be assessed for the works that will be conducted in confined spaces. Toxic and suffocating chemicals shall only be used in confined spaces after special risk assessments have been made.
- Corrosive, oxidizing and reactive chemicals shall be segregated from flammable materials and from other chemicals of incompatible class (acids vs. bases, oxidizers vs. reducers, water sensitive vs. water-based, etc.), stored in ventilated areas and in containers with appropriate secondary containment to minimize intermixing during spills.
- Workers who are required to handle corrosive, oxidizing, or reactive chemicals shall be provided with specialized training and provided with, and wear, appropriate PPE (gloves, apron, splash suits, face shield or goggles, etc.).
- Where corrosive, oxidizing, or reactive chemicals are used, handled, or stored, qualified first aid shall be ensured at all times. Appropriately equipped first-aid stations shall be easily accessible throughout the place of plant, and eye-wash stations and/or emergency showers shall be provided close to all workstations where the recommended first-aid response is immediate flushing with water.

4.4.6 Asbestos Containing Materials (ACM)

According to regulation on Health and Safety Measures in Asbestos Works (Official Gazette No: 28539):

- Extraction, processing, sale and import of all types of asbestos,
- Import and sale of all kinds of asbestos containing products,
- Production and processing of asbestos products or asbestos added products is forbidden.

There will be no work related with asbestos, the Project will be constructed on permitted land and no building covered with asbestos materials exists on site.

4.5 Biological Hazards

Biological agents include bacteria, viruses, fungi (mold), other microorganisms and their associated toxins. They have the ability to adversely affect human health in a variety of ways, ranging from relatively mild, allergic reactions to serious medical conditions, even death.

These organisms are widespread in the natural environment; they are found in air, water, soil, plants, and animals. Because many microbes reproduce rapidly and require minimal resources for survival, they are a potential danger in a wide variety of occupational settings.

4.5.1 Exposure to Biological Hazards

Exposure to biological hazards may occur during demolition, renovation, sewer work, work on air handling systems, or other construction work from contact with contaminated or disease-carrying materials, such as:

- Soil
- Water
- Insects (mosquitoes, ticks, spiders)
- Bird or bat droppings
- Animals
- Structures

In the site, biological health hazards will be most commonly found:

- An accumulation of animal waste and the presence of rodents, insects and birds.
- During demolition and remodelling of old structures and buildings where there is likely the presence of mold.
- During clearing operations and the removal of plants, trees and other foliage.
- Landscaping

4.5.2 Fungi (Mold) Hazards

Fungi (mold) are found both indoors and outdoors, all year round. There are many thousands of species of mold and most, if not all, of the mold found indoors comes from outdoor sources.

Mold seems likely to grow and become a problem only when there is water damage, high humidity, or dampness. Molds are organized into three groups according to human responses: Allergenic, Pathogenic and Toxigenic.

- Potential health effects and symptoms associated with mold exposures include allergic reactions, asthma, and other respiratory complaints.
- There is no practical way to eliminate all molds and mold spores in the indoor environment; the way to control indoor mold growth is to control moisture.
- If mold is a problem in your workplace, you must clean up the mold and eliminate sources of moisture.
- Fix the source of the water problem or leak to prevent mold growth.
- Reduce indoor humidity (to 30-60%) to decrease mold growth.
- Clean and dry any damp or wet building materials and furnishings to prevent mold growth.
- Clean mold off hard surfaces with water and detergent, and dry completely.
- Absorbent materials, such as ceiling tiles that are moldy may need to be replaced.
- Prevent condensation on cold surfaces by adding insulation.
- In areas where there is a perpetual moisture problem, do not install carpeting.

Respiratory protection for exposure to mold will depend on the size of the particle and its level of toxicity. It is important to take precautions to limit your exposure to mold and mold spores. In order to limit your exposure to airborne mold, at a minimum, an N-95 respirator is suggested. If oil is present in the air, make sure to use either an R or a P designed filter.

4.5.3 Poisonous and Infectious Animals

Many different poisonous and infectious animals might be found in or around Kandira WPP site and workers should be aware of these health hazards before starting work in a specific location.

Insects/Spiders

- Pants will be tucked into socks.
- Long sleeve clothes will be worn
- Insect repellents will be used
- Contact should be avoided by always looking ahead to where walking, standing, sitting, leaning, grabbing, lifting, or reaching into.
- Signs of insect/spider bites, such as redness, swelling, and flu-like symptoms will be checked regularly.

Ticks

- Tick should not be detached with bare fingers—bacteria from a crushed tick may be able to penetrate even unbroken skin. Fine-tipped tweezers should be used.
- Tick should be gripped as close to skin as possible and gently pulled straight away until it releases its hold.
- Tick should not be twisted as when pulling; not squeezed by its bloated body. Doing so may inject bacteria into your skin.
- Hands and the bite area should be washed with soap and water. An antiseptic should be applied to the bite area.
- The tick should be preserved in a small container with the date, the location of the bite on body, and the probable location of initial contact with the tick.
- HSE-Q Experts should be notified at any tick bites as soon as possible.

Poisonous Snakes

- Walking in areas where snakes may nest or hide should be avoided. When walking, always look ahead for signs of snakes.
- Extreme caution needs to be used when moving or lifting objects that could be used by snakes as cover.
- Reach under or behind objects or into other areas where snakes may hide should be avoided.
- Poisonous snakebites are medical emergencies, therefore, immediate medical treatment is must.
- Sturdy leather boots should be worn.

Poisonous Plants

Poisonous plants include poison ivy, poison oak, and poison sumac.

- Entering areas infested with poisonous plants should be avoided.
- In case of contact with poisonous plants, any area that came into contact should be washed immediately.
- Personal Protective Equipment should be used when there is possibility of contact with poisonous plants.

Rabies

Rabies is a viral disease caused by infection of the central nervous systems of wild and domestic animals and humans. The initial symptoms of human rabies resemble those of other systemic viral infections, including fever, headache and disorders of the upper respiratory and gastrointestinal tracts. Recognizing that a person has been exposed to the virus and prompt treatment are essential for preventing rabies. Once clinical symptoms have begun, there is no treatment for rabies and almost all patients will die from the disease or its complications within a few weeks of onset.

Foxes, coyotes, wild dogs and rats are the terrestrial animals most often infected with rabies. All bites by such wildlife must be considered a possible exposure to the rabies virus.

The most sensible way to avoid contact with rodents is to prevent rodents from infesting your work site. You must also follow safety precautions if you do come across a rodent infested area.

Safe Disposal

Safe disposal of rodents and proper cleaning and disinfection of rodent-inhabited areas are keys to minimizing exposure to the virus.

- Wear rubber gloves.
- Thoroughly spray dead rodents, traps, droppings, and contaminated areas with a general household disinfectant.
- Place disinfectant-soaked rodents into a plastic bag and seal it. Then place it into a second plastic bag and seal. If possible, burn or bury the bag or contact your local or state health department about other appropriate disposal methods.
- Disinfect floors, countertops and other surfaces with a general household disinfectant.
- Before removing the gloves, wash gloved hands in disinfectant, and then in soap and water. Thoroughly wash hands with soap and water after removing the gloves.
- Disinfect all used traps, and then set them again or replace them.
- Eliminate possible rodent nesting sites such as junk cars, old tires and trash piles. Do not leave animal food and water in feeding dishes overnight, and keep all food in rodent-proof containers.
- Cut grass, brush and dense shrubbery within the immediate area of buildings.

4.5.4 Bird/Bat Carcass

Bird or bat carcass in the vicinity of the wind turbine may encountered. The carcass should not be touched and its location must be reported to the HSE-Q Expert.

4.6 Radiological Hazards

In Kandira WPP, personnel may have a higher exposure to electric and magnetic fields due to working in proximity to electric power generator, equipment and connecting high-voltage transmission lines. Occupational exposure shall be prevented or minimized through the mitigation measures provided below:

- Potential exposure levels in the plant shall be identified and personal monitors shall be used during working activities.
- Personnel shall be given training in the identification of occupational electric and magnetic field (EMF) levels and hazards.

4.7 Personal Protective Equipment

Other than office and allowed areas, minimum acceptable PPE that shall be used in the plant area are not limited with but determined as below.

- Helmet (TS EN 397 +A1)
- Eye Protection Goggles (TS 5560 EN 166)
- Work Shoes (TS EN ISO 20345, TS EN 13832-3)
- Ear Protection PPE
  - According to Decibel (dB), comply with standards (TS EN 352-1, 352-2, 352-3)
- Working at Height PPE
  - Positioning Points and Safety Rope (TS EN 358)
  - Parachute Type Seat Belt (TS EN 361)
  - Personnel Protective Equipment to prevent falling from a height-seat belt (TS EN 813)
  - Rescue Equipment-Rescue Belts (TS EN 1497)
  - Rescue Equipment-Rescue Rings (TS EN 1498)
- High Visibility Jacket (According to weather conditions) (TS EN ISO 20471)
- Respiratory Protection – Face Mask against dust biological risks FFP-1,2,3 (TS EN 12942/A2)

The requirements of special PPE or any change according to site needs shall be determined by HSE-Q Expert.

Mitigation measures for PPE usage are provided below:

- If alternative technologies, work plans or procedures cannot eliminate, or sufficiently reduce a hazard or exposure, work-appropriate PPEs shall be used actively.
- Appropriate PPE that offers adequate protection to the worker, co-workers, and third parties, without incurring unnecessary inconvenience to the individual shall be identified and provided.
- PPE shall be maintained properly including cleaning when dirty and shall be replaced when damaged or worn out.
- Training programs for employees shall include proper use of PPE.
- Selection of PPE shall be based on the hazard and risk ranking and selected according to criteria on performance and testing established.

4.8 Special Hazard Environments

4.8.1 Working in Confined Spaces

Management measures for confined spaces are presented:

- Engineering measures shall be implemented to eliminate, to the degree feasible, the existence and adverse character of confined spaces.
- Permit-required confined spaces shall be provided with permanent safety measures for venting, monitoring, and rescue operations, to the extent possible. The area adjoining access to a confined space shall provide ample room for emergency and rescue operations.
- Confined spaces shall be identified and labelled by HSE-Q Expert.
- Works in confined spaces shall require a Work Permit. Working without a permit shall require disciplinary action.
- Work Permits for confined spaces shall be given after the following inspections:
  - Control of proper entrance and escape
  - Gas measurement
  - Confirmation that all workers are trained (at least two employees go in and one employee as watchmen)

  - If a continuous gas measurement is required, the measurement device shall be given to the employees that go in
  - Ventilation and lighting control
- The works to be performed inside the confined areas shall be performed for the periods determined by the risk assessments.
- The watchmen shall not leave his/her workplace. If he/she needs to do so, another watchman shall be appointed or the work shall be stopped.
- If there is no natural ventilation or if there is hazardous gas accumulation, a ventilation system shall be installed.
- The watchmen shall aware of Emergency Preparedness and Response Plan.
- A rescue kit shall be ready for fainting and other situations in confined spaces.
- Employees entering the confined space shall use PPE in accordance with the risk assessments.
- If lighting is not sufficient in confined spaces, lighting shall be provided. In case of a presence of gas in the environment, ex-proof lightning equipment shall be used to prevent any possible explosion risks.
- Instead of using 220 V electrical hand tools, air-powered or low power hand tools shall be preferred for confined spaces. However, if the work requires 220 V or more, an isolation transformer shall be used.
- The decision on the power of the isolation transformer shall be made depending on the work to be done and the opinion of the electricity team.

4.8.2 Working Alone

Working Alone Concepts

In the scope of Kandira WPP, general procedure for Working Alone presented below:

- Risk Assessment: Risks arising from the conditions and circumstances of the work site will be assessed with the Occupational Health and Safety Committee and Risk Assessment Team, including input from the worker, in order to reduce the probability of an incident. Refer to the Risk Assessment Procedure.

- Eliminate or Reduce the Risk: All reasonable measures will be taken to eliminate the risks identified, which include the development of safe work procedures, establishment of an effective communication system, training of workers, and ensuring access to emergency services in case of injury or incident.

- Key Steps to Follow:
  - Perform a risk assessment.
  - Identify the risks in working alone.
  - Establish safe work procedures.
  - Keep work alone procedures current.

Hazards of Working Alone

Certain circumstances make working alone hazardous. Identifying the hazards inherent to these circumstances depends on accurately defining what working alone is, and evaluating the situation and the degree of risk. Whether a situation poses, a high or low risk will depend on the type of work activity, the work environment, and the potential consequences of an emergency, accident, or injury. The wide range of factors makes it important to assess hazards specific to each work alone situation; determine the level of risk; and consider the employee's knowledge, skills, and training. Working Alone or Working in Isolation describes situations when a worker performs a job function during the course of employment, where they:

- Are the only worker for the employer at a workplace at any time;
- Work at a worksite remote from other workers;

- Work in circumstances where assistance is not readily available;
- Do not have direct supervision by the employer or a supervisor;
- Are not in the presence of another employee directly associated with the same employer;
- Work in an area where the worker does not have visual contact with a co-worker; or
- Travel away from a base office to perform job tasks; for example, client meetings.

Employees who travel alone may be exposed to the risks of injury from a vehicle accident, extreme weather conditions, or being stranded in remote areas. Doing fieldwork alone carries a degree of risk in relation to the location and access to communication and emergency response.

The employer must identify workplace hazards to ensure the health and safety of the employee who works alone. Determining the level of risk involved with the type of activity, task, and environment helps form safe work procedures and develop controls to eliminate or reduce the risks.

A worker representative must participate in assessing the hazards and risks and developing the necessary controls. Employers must inform affected workers of the hazards identified and the methods they will use to control or eliminate the hazards in working alone. The worker should also receive a copy of the hazard assessment.

Factors to consider in hazard identification will be:

- Locations where employees work alone.
- Type of work activity (for example, welding).
- Hazards inherent to the work activity (for example, equipment failure, toxic gasses).
- Hazards inherent to the work environment (for example, heat, cold, hostility, drug abuse).
- Previous incidents, injuries, reports, and near misses.
- Control measures and precautions currently in use.
- Details on how to seek or provide emergency assistance.
- Evacuation and emergency procedures.
- Equipment needed for employees working alone.
- Information and training provided to the worker.
- Gaps or patterns to address.

Safe Work Procedures

After all hazards have been identified, reducing risks requires safety measures and systems suitable to the worker's needs. Before any employee can work alone or in isolation, employers must develop a procedure that both the employer and employee sign. Each working alone activity requires procedures specific to that activity and work environment. The worker must have adequate training in the use of the equipment, systems, and procedures for their effective application.

Worker Consultation

Consulting with the occupational health and safety committee representing the worker or with the worker directly is key to developing and successfully implementing safe work practices. Workers experience the hazards first hand and can help identify controls.

Effective Communication

Written safe work procedures shall include an effective communication system and a way for employees to get help if there is an incident. The communications system must be responsive

to the type and level of risk of the work and worksite. The three main components of effective communication are the frequency of check-in, dependability of the system, and training.

Effective communication systems include:

- Radio communication;
- Phone or cellular communication; and
- Any means that provide effective communication considering the risks involved (for example, satellite phone, two-way radios, silent alarms).

Effective communication may require constant or intermittent mechanical or electrical surveillance or use of security systems, personal pagers, two-way radios, emergency sounding devices, visual monitoring systems, or similar equipment. Post telephone numbers of the regular and emergency contacts in easily visible locations.

The level of risk identified in the hazard assessment will determine the frequency of check-in or call-in times to make contact with the worker. Using the telephone for communication at regular intervals may be adequate in low risk situations. For personnel working in high hazard environments or at night in work environments that attract criminal victimization, check-in would be more frequent.

Check-ins scheduled at regular intervals ensures the safety and well-being of the employee working alone. Check-in procedures must clearly define time intervals (time between check-ins), shift end check-in, and procedures to follow when you cannot contact the worker. The employer, another employee, or the person the employer designates to check on the employee who is working alone, must know about that employee's activities and be capable of putting the emergency response plan into effect.

5. TRAINING

5.1 Management Commitment

Kandira WPP will provide the necessary funds and scheduling time to ensure effective safety and health training is provided. This commitment will include paid work time for training and training in the language that the workers understand. Both management and employees will be involved in developing the program. To carry out safety responsibilities in an effective way, all employees must understand (1) their role in the program, (2) the hazards and potential hazards that need to be prevented or controlled, and (3) the ways to protect themselves and others. Goals will be achieved by:

- Educating everyone on the natural and system consequences of their actions;
- Educating all managers, supervisors, employees, contractors and visitors on their safety management system responsibilities;
- Educating all employees and contractors about the specific hazards and control measures in their workplace;
- Training all employees and contractors on hazard identification, analysis, reporting and control procedures; and
- Training all employees, contractors and visitors on safe work procedures and practices.

Training program will focus on health and safety concerns that determine the best way to deal with a particular hazard. When a hazard is identified, it shall be removed entirely. If that is not feasible, workers shall be trained to protect themselves, if necessary, against the remaining hazard.

5.2 Employees

At a minimum, employees must know the general safety and health rules of the worksite, specific site hazards and the safe work practices needed to help control exposure, and the individual's role in all types of emergency situations. Kandira WPP will ensure all employees understand the hazards to which they may be exposed and how to prevent harm to themselves and others from exposure to these hazards.

Kandira WPP will commit available resources to ensure employees receive safety and health training during the circumstances below.

- Whenever a person is hired - general safety orientation including an overview of company safety rules, and why those rules must be followed.
- Whenever an employee is given a new job assignment -during formal classroom training, and again, when the supervisor provides specific task training. It’s extremely important that supervisors emphasize safety during initial task assignment.
- Whenever new work procedures are begun - during formal classroom training and supervisor on-the-job training.
- Whenever new equipment is installed - if new hazards are introduced.
- Whenever new substances are used - hazard communication program may apply.
- The bottom line - train safety whenever a new hazard is introduced to the employee.

Employees must know they are responsible for complying with all company safety rules, and that most accidents will be prevented by their safe work practices. They must be very familiar with any personal protective equipment required for their jobs. They must know what to do in case of emergencies.

Each employee needs to understand that they are not expected to start working a new assignment until they have been properly trained. If a job appears to be unsafe, they will report the situation to their supervisor.

5.3 Managers

All line managers must understand their responsibilities within OHS Program. This may require classroom training and other forms of communication. Formal classroom training may not be necessary. The subject can be covered periodically as a part of regular management meetings.

Managers will be trained in the following subject areas:

- The elements of the safety management system, and the positive impact the various processes within the system can have on corporate objectives;
- Their responsibility to communicate the Safety and Health Program goals and objectives to their employees;
- Their role that includes making clear assignments of Safety and Health Program responsibilities, providing authority and resources to carry out assigned tasks, and holding subordinate managers and supervisors accountable; and
- Actively requiring compliance with mandatory Safety and Health Program policies and rules and encouraging employee involvement in discretionary safety activities such as making suggestions and participation in the safety committee.

Training will emphasize the importance of managers' visibly showing their commitment to the safety and health program. They will be expected to set a good example by scrupulously following all the safety and health rules themselves.

5.4 Supervisors

Supervisors will be given special training to help them in their leadership role. They will be taught to look for hidden hazards in the work under their supervision; insist on the maintenance of the physical protection in their areas; and reinforce employee hazard training through performance feedback and consistent enforcement when necessary. Kandira WPP will commit necessary resources to ensure supervisors understand the responsibilities below and the reasons for them:

- Detecting and correcting hazards in their work areas before they result in injuries or illnesses.
- Providing physical resources and psychosocial support that promote safe work.
- Providing performance feedback and effective recognition and discipline techniques.
- Conducting on-the-job training supervisors are considered the primary safety trainers.

All supervisors will complete train-the-trainer classes to learn training techniques and how to test employee knowledge and skills. They will also receive training on how to apply fair and consistent recognition and discipline. Supervisor training may be provided by the supervisor's immediate manager, by the Safety Department, or by outside resources

5.5 Contract Workers

All contractors will receive mandatory OHS training before entering the site to recognize specific workplace hazards or potential hazards. No contractor will be allowed without necessary OHS training certificates or on-site training, medical report and any other documentation requested by Kanıra WPP site.

5.6 Visitors

All visitors will receive general OHS training before entering the site to recognize specific workplace hazards or potential hazards. No visitors will be allowed without general OHS training and an accompanying trained employee/guide with them in Kandira WPP site.

5.7 Experienced Workers

Experienced workers will be trained if the installation of new equipment changes their job in any way, or if process changes create new hazards or increase previously existing hazards. Apart from this, according to hazard class types, refresher training will be assigned according to suggested frequency and duration in related regulations.

5.8 All Workers

All workers will receive refresher training as necessary to keep them prepared for emergencies and alert them.

5.9 Training and Accountability

Managers and safety staff will be educated on the elements (processes) within the safety accountability system. The safety committee will be trained on, and continually evaluate safety accountability system. Training will focus on improving the Safety and Health Program whenever hazardous conditions and unsafe or inappropriate behaviours are detected.

Safety orientation will emphasize that compliance with safety policies, procedures, and rules as outlined in the safety plan is a condition of employment. Discipline will be administered to help the employee increase desired behaviours, not to in any way punish. An explanation of the natural and system consequences of behaviour/performance will be addressed in every safety training session.

5.10 Types of Training

Required rules-related training will be conducted according to regulations detailed in Legal Framework section.

HSE-Q Expert will ensure Safety and Health Program training is in full compliance with regulations, laws and standards. In general safety training will be conducted on the following levels:

- General Safety Education: General safety information is communicated to employees. No measurement of knowledge, skills, and abilities are required.

- Specific Safety Training: Specific safety information and instruction on performing safe procedures and practices. Employees must meet established criteria/score to successfully complete the course (e.g. First Aid Training, Working at Heights Training etc.)

5.11 New Employee Orientation

The format and extent of orientation training will depend on the complexity of hazards and the work practices needed to control them. Orientation will include a combination of initial classroom and follow-up on-the-job training (OJT).

- For some jobs, orientation may consist of a quick review of site safety and health rules; hazard communication training for the toxic substances present at the site; training required by relevant regulations, laws and standards, e.g., fire protection, LOTO etc. and, a run-through of the job tasks. This training will be presented by the HSE-Q Expert or delegated employee.
- For larger tasks with more complex hazards and work practices to control them, orientation will be structured carefully. Kandira WPP will make sure that new employees start the job with a clear understanding of the hazards and how to protect themselves and others.

- Health risks will be taught by occupational physician according to related legislation.
- All employees will be informed about grievance mechanism and stop work authority (in case of an unsafe condition is observed and/or reported).

Kandira WPP will follow up supervisory training with a buddy system, where a worker with lengthy experience is assigned to watch over and coach a new worker, either for a set period of time or until it is determined that training is complete.

Whether the orientation is brief or lengthy, the supervisor will make sure that before new employees begin the job, they receive instruction in responding to emergencies. All orientation training received will be properly documented.

5.12 On-the-Job Training (OJT)

OJT training relates principles and theories to work skills that are then taught and applied in the work environment. OJT is designed to reinforce formal classroom training. All new-hire employees require training to perform their jobs effectively. In this regard, OJT is an essential supplement to formal classroom training. OJT assignments may be provided concurrently with formal training to emphasize and complement material covered in formal training courses. Time allotted to accomplish OJT assignments should be compatible with the new hire's current knowledge, skill, and experience levels. The employee's supervisor should assess the employee's ability to successfully complete OJT training.

5.13 Personal Protective Equipment (PPE)

Workers needing to wear personal protective equipment (PPE) and persons working in high risk situations will need special training. Supervisors and workers alike must be taught the proper selection, use, and maintenance of PPE. Since PPE sometimes can be cumbersome, employees may need to be motivated to wear it in every situation where protection is necessary. Therefore, training will begin with a clear explanation of why the equipment is necessary, how its use will benefit the wearer, and what its limitations are. Individual employees will become familiar with the PPE they are being asked to wear. Training will consist of showing employees how to put the equipment on, how to wear it properly, and how to test for proper fit and how to maintain it. Proper fit is essential if the equipment is to provide the intended protection.

5.14 Motor Vehicle Safety

All workers operating a motor vehicle on the job (on or off premises) will be trained in its safe vehicle operation, safe loading and unloading practices, safe speed in relation to varying conditions, and proper vehicle maintenance. Kandira WPP will emphasize in the strongest possible terms the benefits of safe driving and the potentially fatal consequences of unsafe practices.

5.15 Emergency Response

Kandira WPP will train employees to respond to emergencies. Every employee at every worksite will understand:

- Emergency telephone numbers and who may use them;
- Emergency exits and how they are marked;
- Evacuation routes; and
- Signals that alert employees to the need to evacuate.

Kandira WPP will practice evacuation drills at least semi-annually, so that every employee has a chance to recognize the signal and evacuate. Supervisors or their alternates will practice counting personnel at evacuation gathering points to ensure that every worker is accounted for.

Sites will include procedures to account for visitors, contract employees, and service workers such as cafeteria employees. At sites where weather or earthquake emergencies are reasonable possibilities, additional special instruction and drilling will be given.

5.16 Periodic OHS Training

At some worksites, complex work practices are necessary to control hazards. Elsewhere, occupational injuries and illness are common. At such sites, HSE-Q Expert will ensure that employees receive periodic safety and health training and to teach new methods of control. New training will also be conducted as necessary when related laws, regulations and standards change or new regulations or standards are issued. Where the work situation changes rapidly, weekly meetings will be conducted as needed. These meetings will remind workers of the upcoming week's tasks, the environmental changes that may affect them, and the procedures they may need to protect themselves and others.

5.17 Identifying Types of Training

Specific hazards that employees need to know about should be identified through total site health and safety surveys, job hazard analysis, and change analysis. Accident and injury records may reveal additional hazards and needs for training. Near-miss reports, maintenance requests, and employee suggestions may uncover still other hazards requiring employee training.

5.18 Safety and Health Training Program Evaluation

An evaluation of the effectiveness of the training program will be conducted periodically. HSE-Q Expert will interview managers, supervisors and employees who have participated in the program to determine the effectiveness of the training, and to obtain suggestions for program improvement.

Evaluation will help determine whether the training provided has achieved its goal of improving employee safety and performance. When carefully developed and carried out, the evaluation will highlight training program strengths and identify areas of weakness that need change or improvement.

- Evaluation will include analysis of employee attendance at training sessions. Training will not work for an employee who does not show up. Absenteeism can signal a problem with the worker, but it can also indicate a weakness in training content and presentation.
- Pre-and post-training injury and accident rates will be compared overall. The periods being compared must be long enough to allow significant differences to emerge if training has made a difference.
- Evaluation will highlight training program strengths and identify areas of weakness that need change or improvement.
- HSE-Q Team will evaluate training through the following methods:
    - Observing employee skills;
    - Surveys and interviews to determine employee knowledge and attitudes about training;
    - Reviewing the training plan and lesson plans;
    - Comparing training conducted with hazards in the workplace;
    - Reviewing training documents; and
    - Comparing pre-and post-training injury and accident rates.

If evaluation determines program improvement is necessary, the safety committee or HSE-Q Team will develop recommendations.

6. MONITORING AND REPORTING

In the scope of this Plan prepared for Kandira WPP, regular monitoring activities will be carried out in order to assess the level of implementation of the mitigation measures identified for the Project for both construction and operation phases.

In this context, visual observations will be done, and incident reports and minutes of meetings will be analysed for specific monitoring parameters as defined in the Table 2 below.

Table 2 Monitoring Parameters

Project Phase	Monitoring Parameter/ Performance Indicator	Monitoring Station /Location	Monitoring Method	Monitoring Frequency	Responsibility
Operation and Construction Phases	Risk Assessment Reports	Project site	Risk Analysis Tables	Annually	Project Owner
	OHS Communication Meetings Monthly OHS Meetings Accident/incident Investigation Meetings Risk Assessment Meetings	Project site	Minutes of meetings Incident reports	Daily/Weekly/Monthly	Project Owner
	Up-to-date information on notice boards	Project site	Visual observation	Weekly	Project Owner
	Accidents/incidents reports	Project site	Documentation	Monthly	Project Owner
	Audit Reports	Project site	Documentation	Annually	Project Owner
	Compliance to emergency precautions	Project site	Visual observation	Daily/Weekly/Monthly	Project Owner
	Inventory of emergency equipment and ease of access	Project site	Incident Records	Biannually	Project Owner
	First Aid Treatment Log	Project site	Visual Observation	Annually	Project Owner
	Training records	Project site	Documentation	Monthly	Project Owner
	Calibration records of measurement instruments	Project site	Visual Observation	Annually	Project Owner

Based on the monitoring results, necessary corrective and preventive actions will be identified and required changes will be reflected to the Plan. Training program will also be updated accordingly.

OHS audits shall be internal or external. The timing and frequency of internal audits shall be determined by HSE-Q Expert together with the Project management. The schedules of external audits (e.g. audits of national bodies) would be determined by the external bodies themselves. Other than these, the Company shall seek an opportunity to get third party audit services to expand its OHS culture and to increase effectiveness of its OHS management system.

Kandira WPP health and safety management records will form the archived component of the records for this project, in line with all related legislations and standards to facilitate internal and external audit and review. As a minimum they will consist of:

- A copy of Kandira WPP legal register
- Occupational Health and Safety Management Plan with referred other plans
- H&S meetings minutes
- Weekly site inspection reports
- Work permits

- Monthly site reports
- Incidents investigation reports and near misses
- Emergency Drill records
- Record of training and toolbox talks
- A copy of any H&S related correspondence in the project including any nonconformities notification for the Contractor(s)
- Internal and External Audits records
- Copy of the latest Management Review records
- Incidents investigation reports and near misses

Kandira WPP shall be formally documented to allow for control and accountability.

6.1 Safety Inspection, Testing and Calibration

Health and Safety performance at site will be regularly monitored through:

- Weekly site inspections
- Ad hoc site inspections
- Control and maintenance of equipment according to both legislations and equipment needs (calibration and test)
- Internal reviews (if requested)
- External audit visit (if requested)

6.2 Incidents, Concerns and Near-Misses

In the all phases of the Project, the steps to be followed in case of an incident and/or near miss are presented below:

- All incidents and near-misses shall be reported to the management and HSE-Q Expert(s) immediately.
- All incidents and near-misses shall be investigated and recorded by HSE-Q Expert(s) in 24 hours after the first notice.
- Results and findings shall be shared with other departments.
- In case of a loss time incidents or high-potential incidents or near misses, employees assigned by HSE-Q Expert(s) and the management shall be gathered and the root-cause analysis of the situation shall be performed.
- All employees are expected to raise their concerns according to work environment, conditions or any other case that might lead a nonconformity, near miss or incident.
- HSE-Q Experts will collect employee concerns by toolbox talks, risk assessment meetings, OHS committee meetings, inspections, e-mails, written or verbal ways.
- Concern reports and corrective actions will be shared with top management
- Concern reports could be raised anonymously by employees to prevent any retaliation. Employees should be informed about this right to encourage them to raise concern report quality and quantity.

In case of an emergency, Emergency Preparedness and Response Plan should be followed. All employees and third parties shall be informed about the plan and brief information about emergency situations, contact information and actions shall be shared (as a visitor card, OHS boards etc.) with all employees and third parties as follows:

- Call the HSE-Q Expert.
- Summarize the emergency by indicating type of emergency
  - location,
  - time,
  - situation (seriously wounded/injured/material damage/environmental risk),
  - personal information (name and department).

6.3 Occupational Health

According to Occupational Health and Safety Law No. 6331, occupational physician(s) will be responsible for tasks below and below items summarize occupational health processes:

- Health surveillance to be given to workers to protect and improve workers' health,
- Contribution to workplace surveillance, which includes protective, preventive and corrective activities to be carried out against health and safety risks in the workplace,
- Workers' health and safety training and information,
- Identification of situations requiring emergency intervention such as accident, fire, natural disaster and the like in the workplace, preparation of the emergency plan, organization of the applications to be done in terms of first aid and emergency response and cooperation with other relevant units, institutions and organizations,
- To record all the information regarding the surveillance of the working environment and the health surveillance of the workers,
- Keeping the work done by the workers, the results of risk assessment and exposure information performed at the workplace, the results of the recruitment examinations, periodic health examinations, and occupational accidents and occupational diseases records, in accordance with the principle of confidentiality in the personal health files at the workplace.
- To participate in the Occupational Health and Safety Board, if available, to provide consultancy on work environment surveillance and health surveillance of workers and to monitor the implementation of the decisions taken,
- Making necessary checks on the maintenance and cleaning of canteens, dining halls, dormitories, nurseries and breastfeeding rooms, changing rooms, showers and toilets,
- To advise on occupational health, hygiene, collective protection methods and personal protective equipment,
- To advise the employer about the necessary activities in order to improve occupational health and safety at the workplace,
- To make periodic inspections in the workplace and participate in risk assessment studies within the scope of occupational health and safety studies,
- To perform preventive health examinations to be carried out in accordance with the legislation regarding the evaluation and prevention of health hazards in the workplace,
- To determine whether there is a relationship between the absence of work due to health problems and the health hazards that may occur in the workplace, to make measurements related to the working environment when necessary, and to evaluate the results of the workers in terms of health,
- In conducting the work, considering the physical and mental capacities of the workers in terms of ergonomic and psychosocial risks, to ensure the harmony of the work and the worker and to make researches to protect them from stress factors in the work environment.
- To organize the workers' recruitment and periodic health examinations at the intervals specified in the occupational health and safety legislation and in accordance with the legislations to keep them in the workplace,
- In case of absenteeism due to health problems, by recommending return to work, to recommend that those who are inconvenient to work in their previous job should be employed in a job that is in compliance with their current health status,
- To prepare reports by conducting the necessary preventive health examinations for placement of workers such as vulnerable risk groups, those with a diagnosis or suspicion of occupational disease, those with chronic disease, substance addiction, and those who have had more than one occupational accident,
- To carry out spreading prevention and immunization studies for the control of infectious diseases, to provide porter examinations,
- According to the results of the health surveillance, to propose the necessary measurements to be made within the scope of the working environment surveillance in cooperation with the occupational safety specialist, to evaluate the measurement results,

- Informing workers about health surveillance and obtaining their consent, informing workers about the risks and health examinations in an adequate and appropriate manner,
- To make the necessary laboratory tests, radiological examinations and porter examinations, to control the infectious diseases, to carry out immunization studies, to constantly monitor and control the general hygiene conditions of the workplace and its additions,
- To prepare the annual work plan in collaboration with the occupational safety specialist, if available, to record the work related to health surveillance in the workplace and to send it to the Ministry in an electronic environment by preparing the annual evaluation report in accordance with related legislations.
- To carry out the organization of the first aid and emergency response services in the workplace and the training of the personnel in accordance with the relevant legislation,
- To cooperate with relevant parties to provide information and training in the fields of occupational health, hygiene and ergonomics,
- To provide training for general managers on workplace managers, members of the occupational health and safety board, workers and their representatives, and to ensure the continuity of these training,
- To provide on-site training on the harms of the use of addictive substances.
- To participate in researches in the field of occupational health and safety,
- To cooperate with the relevant units in the workplace regarding the rehabilitation of workers who have a work accident or suffer from occupational disease, in cooperation with authorized hospitals for the diagnosis of occupational disease,
- To participate in the development of programs for the analysis of occupational accidents and occupational diseases and improvement of business practices,
- To participate in the development of programs for the improvement of existing applications such as the evaluation and testing of new technology and equipment in terms of health,
- To prepare the annual work plan and annual evaluation report in cooperation with the occupational safety expert,
- To cooperate with relevant parties to provide information and training to managers, to members of the occupational health and safety board and workers on general health, occupational health and safety, hygiene, personal protective equipment and collective protection methods.

6.4 Reporting

Reports will be produced with the findings of the monitoring programs for each OHS issue.

Evidences and results of the monitoring (measurements) activities have to be described in detail in appropriate monitoring reports. This section of the plan provides instructions and requirements for this reporting activity.

Reporting activities for this management plan is mainly related to data on incidents, training, system failures, and received grievances regarding health and safety issues and their investigation.

Official reporting will be done by HSE-Q team and top management in case of any incident, injury or fatality.

The employer is obliged to report this accident to Social Security Institution within 3 working days after work incident. This obligation is specified in the Occupational Health and Safety Law No. 6331.

All personnel can raise their concerns, suggestions and complaints in accordance with the Project’s grievance mechanism.

These data together with the results of the inspection and audits activities will be summarized in a Report on a six-month basis that will be made available to stakeholders which is under the responsibility of the Project owner.

7. REVIEW AND UPDATE

7.1 Communication and OHS Meetings

Project management maintains internal communication on OHS issues through various meetings. In addition, the following meetings are held periodically or when necessary.

7.1.1 Periodic OHS Meetings

Periodic OHS Meeting participants are Construction/Operation Manager, engineers, supervisors, employees' representative, representatives of contractor/subcontractor, human resources manager, occupational physician and HSE-Q Expert. The agenda is shaped in direction of the works/activities carried out at the construction sites and the plant. Additional materials may be added to the agenda when necessary.

7.1.2 Accident/Incident Investigation Meetings

The meeting shall be held on the first workday after the lost-time accident. Construction/Operation Manager, HSE-Q Expert and Occupational Physician participate in the meeting. In the meeting, root cause analysis is performed to determine how the system failed and how the accident/incident or near miss occurred. The determined corrective actions are recorded and monitored.

7.1.3 Risk Assessment Meetings

- A risk assessment is prepared for a new or general work.
- The participants of the meeting are HSE-Q Expert, Occupational Physician, Employee's Representative and the responsible engineer or the manager of the work that risks to be assessed.
- The contribution of the employees who will perform the assessed work is also requested.
- The prepared risk assessment is signed by all parties and conveyed to the employees.
- Risk identifications are made by specifying all possible worst-case scenarios together with their reasons at the meeting.
- Expert contribution to these meetings is requested if necessary. In case of expert participation, his/her signature is also added to the risk assessment.

7.1.4 Notice Boards

OHS Notice Boards will be placed at various locations in the Kandira WPP. These boards will be used for the announcement of new arrangements, for the identification of hazards, and to disseminate OHS awareness.

Announcements posted on the board are considered are passive communication and the possibility of the employee not reading this announcement is taken into consideration. The announcements that must be heard or noticed by employees are read at general meetings and if necessary, the situation is verified with the signatures of the employees.

7.2 Emergency and Crisis Management

Saganak will determine possible emergencies and crisis scenarios, and constitute, and implement an Emergency Preparedness and Response Plan regarding early detection and management of them. This plan shall be thought in OHS awareness training given to all employees throughout the year.

7.3 Grievance Mechanism

All personnel can raise their concerns, suggestions and complaints according to grievance mechanism by filling grievance form

7.4 Calibration of Measurement Instruments

All measurement instruments used in the construction and Plant activities are calibrated in accordance with the national and international standards, and national legislations. Calibrations are recorded to a calibration log and kept and followed by HSE-Q Expert.