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## **8. Construction HSE Management Plan**

### **8.1 Introduction**

Health, safety and environment (HSE) protection is fundamental to the Proponent's operations and forms an integral part of Gulf Power Ltd.'s HSE Management System. The Proponent is committed to the implementation of the requirements of an HSE system that is consistent with national and international HSE standards for their facilities.

The proposed power plant will be constructed by an engineering, procurement and construction (EPC) management contractor. The EPC contractor is expected to sub-contract the civil, mechanical, electrical, instrumentation and control components to locally based Kenyan contractors. Prior to construction the EPC contractor will develop, roll-out and implement a construction HSE plan which will outline the routine management of HSE aspects associated with the construction phase of the project.

During the operational phase, the Proponent will develop, rollout and implement a formal HSE management system for the operation of the thermal power plant.

This section outlines the framework of a construction HSE management plan that the successful contractor is expected to implement in building the proposed thermal power plant.

### **8.2 Compliance with HSE legislation**

The EPC contractor will need to ensure that their construction HSE management plan complies as a minimum with stipulated laws and regulations in Kenya on HSE. Some of the pertinent laws are referenced below.

- Environment Management and Coordination Act, 1999 and its subsidiary legislation;
- Energy Act, 2006;
- Occupational Safety and Health Act, 2007 and its subsidiary legislation;
- Physical Planning Act, 1996;
- Local Government Act;
- Public Health Act;
- Water Act.

## **8.3 Compliance with International HSE Framework**

As stated in preceding section, the proposed project will be undertaken in accordance with Kenyan legislation on HSE. Additionally it is expected that the EPC contractor and their sub-contractors will comply with the requirements of the IFC on environment, health and safety preservation throughout the construction phase in accordance with relevant IFC guidelines. The EPC contractor will further ensure that the project construction phase complies with the relevant requirements of the Equator Principles as discussed in Section 7 of this ESIA Study.

## **8.4 Construction HSE management plan**

### **8.4.1 Purpose of a construction HSE plan**

A construction HSE plan is management tool used to manage HSE activities associated with the construction of a project. It is a prerequisite for satisfying the Proponent that the successful contractor has implemented a management system for the safe operation of construction related activities in a project.

The construction HSE plan sets out the HSE management system as well as the resources required to implement it. It includes the minimum requirements for compliance with local HSE laws and regulations in order to prevent injuries to workers, damage to property or the environment. In the absence of relevant legislation, the EPC contractor will ensure compliance with international standards, guidelines and best practices in the safe operation of construction activities associated with the project.

### **8.4.2 Objectives of a construction HSE plan**

The principal objectives of a construction HSE plan include:

- Prevention or limitation of injuries to workers, damage of property or the environment through an emergency preparedness and response plan;
- Prevention of recurring accidents or incidents through a program of root cause analysis;
- Ensuring that safe work practices and procedures are issued and understood by all construction workers;
- Verification through planned audits and reviews that procedures and instructions are complied with fully; and
- Counseling construction workers involved in near misses on better safe work practices.

In order to implement the construction HSE plan, the EPC contractor will implement the following strategy:

- The HSE goals/objectives of the project will be verified and commented upon in each HSE meeting;
- A monthly HSE theme relevant to the planned objectives will be issued;
- Monitoring and control of unsafe practices;
- Initiate an unsafe act/condition report system for conveying accountability to affected employees including a disciplinary action system for non-compliance;
- Initiate an HSE recognition and rewards program for good HSE behavior among construction workers;
- Organize HSE competitions to promote interaction of construction workers through direct involvement in routine HSE objectives.

### 8.4.3 HSE organization and responsibilities

HSE is a management responsibility. Subsequently construction management of the proposed project shall form part of the daily responsibility of each member of the EPC contractor’s management team and the sub-contractors’ they supervise.

The EPC contractor’s organization structure should include several persons who will have routine responsibilities for managing HSE aspects associated with the construction phase of the project. A brief outline of the roles and responsibilities of various actors in HSE management is given below.

The organization chart proposed for the construction of the proposed thermal power plant is indicated below.

Position	HSE Roles and Responsibilities
Project Management Engineer	<ul style="list-style-type: none"> <li>• Overall EPC contractor representative and retains HSE monitoring role over the project;</li> <li>• Has overall responsibility for HSE associated with the project.</li> </ul>
Construction Manager	<ul style="list-style-type: none"> <li>• Reports to the Project Management Engineer;</li> <li>• Promotion of HSE awareness by example (role model behavior);</li> <li>• Ensures sub-contractors comply with HSE rules and are trained in HSE;</li> <li>• Ensures that the project HSE plan is continuously maintained and updated.</li> </ul>
Plant Engineer	<ul style="list-style-type: none"> <li>• Reports to the Construction Manager;</li> <li>• Promotion of HSE awareness by example (role model behavior);</li> <li>• Ensures that all construction plant (cranes, ropes, lifting tackles, etc.) is certified as being safe by a DOHSS approved person;</li> <li>• Maintains all HSE records and provides them to</li> </ul>

Position	HSE Roles and Responsibilities
	<p>the Proponent or HSE related lead agencies on request.</p>
<p>Other managers, supervisors and engineers</p>	<ul style="list-style-type: none"> <li>• They report to the Construction Manager;</li> <li>• Demonstrate their concerns for HSE compliance by good role model behavior;</li> <li>• Ensure that subordinates are aware of HSE hazards involved in their respective work tasks through training and work experience;</li> <li>• Ensure compliance with HSE legislation including conducting regular HSE inspections at the work site;</li> <li>• Ensure that construction plant and equipment is in a good state of repair and made available to the construction workers;</li> <li>• Reporting of any unsafe acts or conditions to the Construction Manager’s attention for remedial action;</li> <li>• Ensuring that all accidents/incidents are reported immediately and appropriate investigations undertaken;</li> <li>• Plan, coordinate and participate in HSE toolbox meetings for construction workers.</li> </ul>
<p>Employees</p>	<ul style="list-style-type: none"> <li>• Carry out their routine construction activities in a healthy, safe and environmentally friendly manner;</li> <li>• Use appropriate PPE provided to them by the contractor;</li> <li>• Ensure compliance with the contractor’s HSE rules;</li> <li>• Be aware of the HSE hazards associated with the construction plant and equipment they will use;</li> <li>• Bring to the notice of their immediate management any HSE hazards identified during the construction phase.</li> </ul>
<p>HSE manager</p>	<ul style="list-style-type: none"> <li>• Reports to the Project Management Engineer and is the primary advisor to the EPC contractor on all HSE issues associated with the construction site;</li> <li>• Is empowered to halt construction operations if any unsafe acts or conditions are witnessed;</li> <li>• Ensures all managers and employees are aware of their HSE responsibilities;</li> <li>• Facilitates HSE risk assessments and JSAs;</li> <li>• Undertakes regular HSE inspections of the construction site in accordance with the contractor’s HSE policy;</li> <li>• Provides HSE training for the EPC contractor’s managers, employees and nominated sub-</li> </ul>

Position	HSE Roles and Responsibilities
	contractors; <ul style="list-style-type: none"> <li>• Undertakes accident/incident investigation in order to establish root causes of accidents/incidents;</li> <li>• Ensures statutory HSE audits and inspections are undertaken and reports filed appropriately;</li> <li>• Issues a construction HSE project report monthly;</li> <li>• Provides HSE documents requested by the Proponent or any HSE related lead agency.</li> </ul>
HSE representatives	<ul style="list-style-type: none"> <li>• Responsible for ensuring that relevant HSE work instructions are understood and fully implemented by fellow workers;</li> <li>• Reporting any accidents/incidents, unsafe acts or conditions to the HSE manager;</li> <li>• Reinforcing and encouraging the concept of individual HSE responsibility within their work teams;</li> <li>• Attend all HSE meetings and share proceedings with the rest of the work teams.</li> </ul>
Sub-contractors	<ul style="list-style-type: none"> <li>• Will be subjected to the EPC contractor's HSE appraisal;</li> <li>• Compliance with HSE laws and regulations and EPC contractor's HSE policies.</li> </ul>
Suppliers	<ul style="list-style-type: none"> <li>• Comply with the EPC contractor's HSE policy which will be forwarded to them by the HSE Manager;</li> <li>• Provide relevant HSE information to the HSE Manager associated with storage, use and disposal of supplies.</li> </ul>

#### 8.4.4 HSE performance measurement

The EPC contractor will be required to develop, rollout and implement an HSE performance measurement system. The measurement system will be used to recalibrate the HSE performance of the project during the construction phase to ensure that there are no injuries to people, damage to property or the environment. Some of the performance measurement metrics that should be considered for tracking include the following lagging and leading indicators:

- No. of fatalities;
- Lost time incident rate (LTIR);
- No. of fire incidents;
- No. of environmental incidents;
- Equipment damage/minor injuries;
- No. of health and hygiene reports;

- No. of HSE meetings conducted;
- No. of HSE inspections undertaken;
- No. of emergency drills conducted;
- No. of HSE training courses conducted.

#### **8.4.5 HSE interface between contractor and proponent**

Throughout the construction phase, there will be an interface between the proponent and the EPC contractor on HSE management. The objectives of this activity are to ensure that:

- The EPC contractor achieves the same or higher HSE standards than those stipulated by the Proponent;
- All HSE related hazards of the construction phase are identified, evaluated and appropriate control measures implemented;
- The EPC contractor understands their obligations with respect to HSE associated with the project;
- HSE performance management arrangements are in place by mutual definition.

The interface on HSE management may be achieved by the proponent and EPC contractor through meetings, reviews and audits during the design and construction phases of the project respectively. Some of the meetings may be defined as follows:

- HSE kick-off meeting;
- Weekly HSE progress meetings;
- Ad-hoc HSE meetings called by either the proponent or the EPC contractor to discuss specific HSE issues; and
- HSE reviews/inspections undertaken by either the proponent or the EPC contractor or both.

### **8.5 Safety action plan**

#### **8.5.1 Design phase**

This section summarizes the processes that will be used by the EPC contractor during the design phase of the project. The processes include general duties, HSE management during the design phase, design reviews and recording.

##### **General duties**

It will be the general duty of the EPC contractor's in-house designers to ensure that the design and construction of the proposed project is achieved without HSE risks as far as is practically possible.

Hazards associated with the construction and commissioning of the proposed project will be identified during the design phase of the project. Where possible the hazard will be removed or avoided however if this is not possible, appropriate control measures will be incorporated in the design phase.

During the design phase, the EPC contractor will develop construction operating procedures to ensure the safety of people, maintain integrity of the proposed project against capital and revenue loss, and ensure against damage to the environment. This will be achieved by employing the following tasks:

- Application of correct design standards, codes of practice, policies, procedures, etc.;
- Critical review of the design and construction activities of the project;
- Formal identification of hazards;
- Qualitative/quantitative analysis; and
- Implementation of actions arising from the above steps.

### **HSE management**

HSE management in the design phase will encompass interactions between the following EPC contractor's specialists:

- HSE Manager;
- Safety and Environmental Engineers; and
- Designers.

Each of the above disciplines will have specific roles to play in ensuring that the proposed project is designed after elimination of all health and safety hazards. Where such hazards cannot be eliminated, a hierarchy of hazard control will be employed to minimize the health and safety hazard exposure to construction workers.

The EPC contractor while conducting the design will ensure that their designers systematically exercise health and safety issues associated with the design of the project. Any risks identified will be eliminated to ensure that there is no risk to worker injury or property damage. The designers will employ a risk assessment approach to the design of the project. Under this approach if the identified risks cannot be eliminated, sufficient information will be included with the design to alert others to the risks which they cannot reasonably be expected to know about.

### **Design reviews**

The safety action plan in the design phase will include both internal and external design reviews. Internal design reviews will be initiated by the contractor's engineering manager and will include verification of all engineering documents before releasing them to the Proponent for external reviews.

The external design review will be undertaken by the Proponent to ensure that the EPC contractor's project design is adequate and conforms to the terms of the contract health and safety requirements.

### **Recording process**

The EPC contractor will have in place a quality assurance system such as ISO 9001. The EPC contractor's designers will maintain a record of all design decisions and how health and safety was incorporated into the design.

A health and safety file will be maintained by the EPC contractor containing the risk control measures that need to be implemented during the construction phase of the project.

## **8.5.2 Construction and fabrication phase**

### **Safety hazards and critical areas**

Prior to commencing construction the EPC contractor will identify potential hazards to the safety of personnel associated with construction phase of the project. The list of potential hazards will be updated on-site at regular intervals. For each hazard identified the EPC contractor will ensure that there is a safe work procedure that is developed, rolled-out and implemented for the project.

### **Safety procedures**

As an experienced contractor will be engaged for this project, it is envisaged that they will already have safe work procedures developed for similar types of projects. These procedures will be customized for the proposed project and used throughout the construction phase. Examples of construction activities for which safe work procedures are required include:

- Cranes and lifting equipment operations;
- Electrical work;
- Confined space entry;
- Fire protection and prevention;
- Emergency response;
- Permit-to-work;
- Job safety analysis (JSA);
- Risk analysis;
- Root cause analysis;
- Safety incentive program; and
- Disciplinary system, etc.

### **Safety training**

Health and safety training of workers is required by Kenyan legislation under the Occupational Health and Safety Act, 2007 (OSHA). Additionally the EPC contractor will be required to train their sub-contractors on the safe work procedures some of which are identified above. Health and safety training needs will be identified by the contractor prior to commencement of the construction phase of the project. Health and safety training associated with the project will be extended to all levels of management and workers who may potentially be exposed to health and safety risks during the construction phase of the project. Health and safety training records will be maintained on site by the EPC contractor for review by appropriate lead agencies and the Proponent.

### **Safety guidelines and rules of operation**

The successful contractor will be required to have a formal PPE program that can be implemented for the proposed project. The PPE program will in the main include instructions for:

- Selection of correct type of PPE based on the hazards at the job site;
- Issuance of PPE;
- Correct use of PPE;
- Inspection and maintenance of PPE;
- Replacement of worn out PPE.

In addition to the PPE program, the contractor will evaluate all risks associated with working at heights (1.8m above grade level). For such work, the construction workers will be provided with appropriate safety harnesses or safety nets. All construction vehicles will be fitted with seat belts that operators must wear while working.

The construction site will contain appropriate signs, signals and barricades that are visible to the workers to protect them from potential hazards. Trenches and other excavation will also be provided with appropriate barricades, signs and signals. Where it is necessary to perform work at night, the EPC contractor will ensure that their sub-contractors provide artificial lighting sufficient to permit work to be carried out safely, efficiently and satisfactorily.

All tools and equipment deployed by the EPC contractor and their sub-contractors shall be free from defects, be in good operating condition and maintained in a safe condition. Any equipment that falls under the Examination of Plant Order under the OSHA shall be inspected by a DOHSS approved person and a certificate issued prior to its use at the construction site. Some of the tools, equipment and plant expected to be used for the proposed project include:

- Hand and portable power tools;
- Compressed gas cylinders;
- Scaffolds;
- Cranes and lifting equipment;

- Motor vehicles;
- Ladders.

In addition to the above, the EPC contractor will develop, rollout and implement the following health and safety rules for the construction site:

- Job site transportation;
- Daily construction plant inspection;
- Electrical operation;
- Floor, wall openings and stairway;
- Excavation and trenching;
- Steel erection;
- Confined space entry;
- Work near pressurized pipelines;
- Medical services;
- Fire protection and prevention;
- Alcohol and drug abuse.

## **8.6 Occupational health action plan**

An occupational health plan is primarily concerned with identification, evaluation and control of environmental health exposure that result from construction processes. The stresses can be physical, chemical, biological and physiological and may cause sickness, impaired health or discomfort to employees.

An occupational health plan therefore addresses the above concerns as they apply to the project and to provide cost effective solutions to assure the health and well-being of project employees.

The successful contractor will engage the services of a medical practitioner(s) based in Athi River or Nairobi with skills and competencies in clinical and occupational medicine, industrial hygiene, toxicology, epidemiology, etc.

### **8.6.1 Medical and health program**

The medical and health plan provides the necessary and important parts of a construction project medical and health program. The objectives of this program are to:

- Protect employees against occupational health hazards at the construction worksite;
- Facilitate placement of workers according to their physical, mental and emotional capabilities without endangering their own health and safety or that of others; and

- Ensure adequate medical care and rehabilitation of the occupationally injured or ill person.

The EPC contractor will engage the services of a DOHSS approved Designated Health Practitioner (DHP) for undertaking medical examinations in accordance with the Second Schedule of the OSHA and Legal Notice No. 24: Medical Examination Rules, 2005. For those occupations defined in the Second Schedule of the OSHA, the EPC contractor will avail their employees to a DHP for medical examinations throughout the construction phase of the project during the following occasions:

- Pre-assignment;
- Periodic;
- Post illness or injury; and
- Termination.

An occupational injury or illness will be diagnosed as promptly as practical and treated as appropriate within the capabilities of the workplace medical facility. The EPC contractor's occupational health program should include treatment of emergency conditions at the work site which may occur during the construction phase of the project.

Construction workers and other employees will be inducted to the potential occupational health hazards that they may encounter in their specific roles. The induction will include methods of recognizing and preventing adverse health and safety effects at the work place.

The occupational health program will also include training of construction workers on the correct use and maintenance of PPE issued to them. The site HSE Manager will periodically inspect and evaluate the workplace for potential adverse occupational health hazards.

Occupational health record keeping will be maintained by the site HSE Manager for all employees that are medically examined. The records will contain sufficient data to reproduce a chronology of an employee's medical occurrences, illnesses and injuries. All employee medical records will be maintained confidentially.

If the EPC contractor engages catering personnel for their staff, it will be mandatory for each food handler to be immunized every six months as required by the Local Government Act.

### **8.6.2 Record keeping requirements**

Medical records will provide data for use in job placement, establishing health standards, health maintenance, treatment and rehabilitation, worker's compensation cases and assisting project management with program evaluation and management. The record keeping requirements will comply with Kenyan laws and regulations as well as the Proponent's insurance requirements.

The EPC contractor and their appointed DHP will maintain occupational health records of workers as required by Kenyan legislation (OSHA, WIBA and L.N. 24). The DHP will confidentially maintain health examination records of all employees that visit him/her. Examples of records that need to be maintained include:

- Physical examination reports;
- Clinical reports;
- Chest x-rays,
- Audiograms, etc.

The medical records shall be maintained in locked files and only authorized persons shall have access to them. In certain situations requests for specified medical information may be sought by authorized Government officials. Additionally an employee or his/her designated representative may seek information about themselves or their environmental exposure. These requests shall be turned over to the project managers for handling.

### **8.6.3 Inspection program**

The site HSE Manager will conduct sanitation and health inspections at the job site to ensure compliance with project medical and health rules and regulations. The sanitation inspections will cover the following areas:

- Drinking water;
- Control of vermin and pests;
- Toilet facilities;
- Waste disposal;
- Lunch areas.

Written reports will be issued having target dates for corrective actions to be taken by responsible supervisory personnel.

### **8.6.4 Training**

During the construction phase, the contractor will be required to arrange for training on first aid, health and safety, security and fire safety.

### **8.6.5 Communications system**

The EPC contractor will be required to develop, rollout and implement a rapid communications system to ensure fast and reliable emergency communications between the project site and crews at the scene of an accident.

### **8.6.6 Procurement and material control**

The contractor's HSE Manager will develop a master listing of all medical and first aid materials, supplies and equipment that will be needed during the construction phase of the project.

## **8.7 Environment action plan**

The purpose of a construction environment management plan (CEMP) is to specify environmentally sound working methods in order to minimize environmental impact of the construction works associated with the proposed project.

The CEMP identifies key environmental aspects and the related impacts which may occur and specifies methods, measures and controls that the EPC contractor will comply with during the construction phase of the project.

### **8.7.1 Key environmental positions**

The beginning of this section identified the key HSE positions that will be used to manage health, safety and environmental aspects during the construction phase of the project. The primary persons from the EPC contractor's organization responsible for implementing the CEMP include:

- Project Management Engineer;
- Construction Manager;
- Engineering Manager; and
- HSE Manager.

The Project Management Engineer will have overall responsibility for all aspects related to environmental issues and to ensure that the EPC contractor's environmental policy statement and objectives are complied with.

The Construction Manager will be responsible for developing, rolling out and implementing environmental procedures and work instructions in conjunction with the HSE Manager.

The Engineering Manager will be responsible for reviewing environmental issues during the design phase of the project.

The HSE Manager will be responsible for several environmental functions such as:

- Coordinating environmental inputs to the project and advising the Project Management Engineer and Construction Manager on environmental matters;
- Coordinating the development, rollout and implementation of the EPC contractor's environment management system (EMS) for the project;
- Routine monitoring of implementation of the EPC contractor's EMS at the project site;

- Authority to halt any works where actions are found to be in contravention of particular environmental procedures, work instructions or legal requirements;
- Authority to amend work instructions and procedures as required by sound environmental management including amendments to the EMS as identified by audits.

#### **Environmental training**

The EPC contractor's management and their sub-contractors will receive environmental induction training prior to commencement of the construction phase of the project. The training will cover the contractor's EMS and environment work instructions relevant to the construction activities.

### **8.7.2 Environmental objectives**

The EPC contractor will develop an environment management system (EMS) in order to comply with basic environmental objectives and targets set for the project. Environmental objectives for the construction phase will be discussed and agreed between the Proponent and the EPC contractor. The EMS will detail the environmental standards for the project and will include a number of environmental work instructions. The EMS will be implemented in conjunction with the EPC contractor's health, safety and environment action plan. Environmental activities will be audited regularly to ensure continued compliance with predetermined environmental objectives.

Environmental work instructions will be developed to comply with all legislative and regulatory requirements as a minimum. The objective is to endeavor to minimize and prevent where possible adverse environmental impacts. The environment work instructions will apply equally to all the EPC contractor's workers, sub-contractors, project consultants and suppliers.

The EPC contractor will provide environmental training for their workers in order to minimize the likelihood of environmentally damaging incidents occurring.

### **8.7.3 Environmental procedures**

The EPC contractor will develop, rollout and implement environmental procedures for the design and construction phase of the project. The procedures will be organized under two categories namely:

- Management and Organization procedures; and
- Environmental Management Procedures.

The above types of environmental procedures will be developed jointly by the HSE Manager and construction team. Once drafted, the procedures will be discussed with the Project Management Engineer and Construction Manager to ensure operability.

#### **8.7.4 Environmental performance meetings**

The EPC contractor will schedule regular meetings to discuss environmental performance of the project during the construction phase. The meetings will be attended by the Project Management Engineer, Construction Manager, HSE Manager and the Proponent. Minutes of the meetings will be circulated to all employees and posted on construction site notice boards.

#### **8.7.5 Environmental reviews**

Environmental reviews include both inspections and audits to be conducted by the contractor. Audits will be conducted by the HSE Manager and will include monitoring of construction phase environmental effects against identified performance targets. Findings and recommendations will be shared with the Project Management Engineer, Construction Manager and the Proponent.

Inspections of working areas will be performed periodically using appropriate checklists. Inspections will be undertaken by construction supervisors and findings/ corrective actions discussed in daily construction meetings. A tracking system shall be employed for monitoring status of implementation of corrective actions. Records of inspections will be filed on-site and made available to relevant lead agencies and the Proponent.

#### **8.7.6 Soil conservation and erosion mitigation**

The EPC contractor will develop a soil conservation and erosion mitigation plan which will include details on how to perform clearing, grading, excavation, trenching and backfilling work at the project site.

During the construction phase, the EPC contractor will take adequate measures to prevent soil erosion especially during the rainy season. The integrity of soil erosion mitigation shall be sufficient to provide continued protection against erosion until the site soils have stabilized and added protection is no longer necessary.

#### **8.7.7 Site restoration**

Prior to handover of the completed footprint to the Proponent, the EPC contractor will undertake a final cleanup of the entire project site including removal of all non-hazardous and hazardous waste or excess materials. Surface restoration and stabilization will be performed in accordance with environmentally sound practices.

### **8.7.8 Waste management**

Prior to the construction phase but immediately after award of the contract, the EPC contractor will develop a waste management plan for the project. The waste management plan will be in compliance as a minimum with Legal Notice 121: Waste Management Regulations, 2006 and the Proponent's environmental requirements.

### **8.7.9 Spill response**

During the construction phase, the EPC contractor will be required to develop, rollout and implement a spill response procedure for any spills that could potentially result from the EPC contractor's operations.

### **8.7.10 Air quality**

Kenya has developed air quality regulations which are awaiting gazettelement. It is envisaged that the EPC contractor's mechanically driven plant and equipment will emit criteria pollutants to the atmosphere during the construction phase. The EPC contractor will ensure that the plant and equipment they use for the project is in a good state of repair, well maintained, and equipped with suitable mufflers to prevent generation of air pollutants and noise.

### **8.7.11 Work site controls**

The EPC contractor through the HSE Manager and HSE representatives will monitor the project construction site daily for environmental non-conformances and submit written HSE reports to the Proponent weekly. Remedial action on environmental non-conformances will be implemented immediately they are observed.

Scheduled environmental inspections will be undertaken by the EPC contractor on a monthly basis and all reports filed on site for inspection by relevant lead agencies or the Proponent.

Construction workers will be provided with environmental induction training as well as on-the-job (OTJ) environmental training by the EPC contractor. On completion of the induction training, each employee will be required to sign a letter stating that non-compliance with the contractor's environmental policy shall be grounds for immediate dismissal.

### **8.7.12 Wastewater management and spill response**

During the construction phase there is a potential for effluent generation and fuel spills from a number of sources. To minimize the likelihood of such adverse environmental impacts the EPC contractor will:

- Bund all on-shore fuel storage areas using impermeable materials;

- Establish an early warning system and identification of contingency plans for spill response;
- Monitor the quality of water used as hydrotest water for the storage tanks and pipelines used for the project before being discharged into the environment.

#### **8.7.13 Noise management procedures**

The potential noise generated by construction activities outside normal working hours will be assessed prior to the construction phase of the project and notification sent to the affected persons. Noise sensitive receptors will be identified by the EPC contractor and appropriate noise control measures implemented.

#### **8.7.14 Traffic management procedures**

The proposed construction of the project may have an adverse impact on traffic if not properly managed. Such effects include higher noise levels, generation of dust and additional wear and tear to local roads. The EPC contractor will develop, rollout and implement a traffic management plan to include careful planning of routes used by construction vehicles, restrictions on vehicle movements and wetting of road surfaces to reduce dust generation.