



THE REVOLUTIONARY GOVERNMENT OF ZANZIBAR

THE OILAND GAS (UPSTREAM)

ACT, NO.6 OF 2016

THE HEALTH, SAFETY AND ENVIRONMENT

(UPSTREAM) REGULATIONS 2022



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THE OIL AND GAS (UPSTREAM) ACT, NO. 6 OF 2016

**THE HEALTH, SAFETY AND ENVIRONMENT (UPSTREAM)
REGULATIONS, 2022**

[Made under section 155(2)(n) and (u)]

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THE OIL AND GAS (UPSTREAM) ACT, NO. 6 OF 2016

**THE HEALTH, SAFETY AND ENVIRONMENT
(UPSTREAM) REGULATIONS, 2022
[Made under section 155(n) and (u)]**

IN EXERCISE of the powers conferred upon me under section 155(n) and (u) of the Oil and Gas (Upstream) Act, No. 6 of 2016, **I, SULEIMAN MASOUD MAKAME**, Minister for Blue Economy and Fisheries do hereby make the following Regulations:

L.N 157 of
2022.

**PART ONE
PRELIMINARY PROVISIONS**

1. These Regulations may be cited as the Health, Safety & Environment (Upstream) Regulations, 2022 and shall come into operation after being signed by the Minister and published in the Gazette. Short title and commencement.

2. These Regulations shall apply to the Zanzibar Petroleum Development Company (ZPDC), contractor, subcontractor and any other person involved in (Upstream) Petroleum operations in Zanzibar. Application.

3. In these Regulations, unless the context otherwise requires: Interpretation.
 - “Act” means the Oil and Gas (Upstream) Act, No. 6 of 2016;
 - “Acceptance criteria” means:
 - (a) the criteria used as a basis for decisions related to a risk that is acceptable in a given context based on the current international values of the petroleum industry and society; or
 - (b) specified indicators or measures employed in assessing the ability of a component, structure or system to perform its intended function;

“Authority” means the Zanzibar Petroleum (Upstream) Regulatory Authority established under section 7 of the Act;

“authorized officer” means an officer or other person acting under the instruction of the Authority under these Regulations;

“best international petroleum industry practices” means as defined under the Act;

“competent person” means a person who has knowledge, training, experience and qualifications to perform a specified duty safely and properly;

“confined space” includes any chamber, room, vat, pit, pipe, flue, tank, drain, sewer, still, tower or other space where there may be a concentration of dangerous fumes, toxic materials or substances, harmful liquids or lack of oxygen that causes or is likely to cause danger to any person;

“dimensioning fire” means a fire which in accordance with the defined acceptance criteria under these Regulations represents an unacceptable risk, and which consequently serves as a basis for design and operation of installations and facilities;

“facility” means as ascribed under in the Act;

“fire division” means a distance or division made of incombustible materials to minimize the probability of a fire spreading horizontally or vertically;

“Hazard Operability (HAZOP) study” means a structured and systematic examination of a planned or existing process or operation in order to identify and evaluate problems that may represent risks to personnel or equipment, or prevent

efficient operation;

“Hazard Identification (HAZID) study” means a systematic assessment to identify hazards and problem areas associated with plant system, operation, design and maintenance;

“hazardous materials and substances” means:

- (a) toxic, corrosive, explosive, oxidizing, flammable, harmful or irritant solids, liquids or gases, which when, inhaled, ingested or come into contact with human skin, causes or are likely to cause harm or damage;
- (b) a substance which due to its physical-chemical or chemical properties and use creates a risk to human health and the environment; and
- (c) any dust, whether in form of solid particles or fibrous materials or other material is capable of forming an explosive mixture in air or an explosive atmosphere;

“hot work” means any process that can be a source of ignition when flammable material is present or can be a fire hazard regardless of the presence of flammable materials within the area including riveting, welding, cutting or grinding;

“incident” means any occurrence which has the potential to cause harm to a person or damage to equipment, property or the environment and includes accidents;

“inspector” means a person appointed as an inspector under the Occupational Safety and Health Act or any other person authorized by the Authority;

“lifting appliance” means a composite unit used for hoisting and lowering loads, with or without horizontal movement;

“lifting gear” means components or equipment used between the lifting appliance and the load or to grip the load, and

which are not an integrated part of the lifting appliance;

“major accident” means an occurrence such as a major emission, fire or explosion resulting from uncontrolled developments in the course of the operation of any facility or during a petroleum activity, leading to danger to human health or the environment, whether immediate or delayed, inside or outside the facility, and involving one or more dangerous substances;

“Management system” means an integrated approach where all three Health, Safety and Environment factors are effectively managed to control and reduce health, safety and environmental risks in the workplace;

“occupational accidents” means as defined under the Occupational Safety and Health Act;

“offshore operations” means an operation carried out in marine area with water depth exceeding 200 meters;

“onshore operations” means an operation carried out in terrestrial land and marine area with water depth less than or equal to 200 meters;

“person-in-charge” means person appointed by the ZPDC, contractor or subcontractor in accordance with these Regulations;

“petroleum operations” has the meaning as defined under the Act;

“pipeline systems” means pipelines and risers that transport petroleum and other fluids, with associated safety systems, valves, chambers and corrosion protection systems;

“safety functions” means physical measures that reduce the probability of an accident, incident or a hazardous situation occurring or that limit the consequences of an incident, hazard or accident;

“safety system” means a system that realizes one or more active safety functions;

“standards” means standards, specifications and codes of practice which apply to the operation, use, construction, decommissioning and disposal of facilities required for the purpose of carrying out petroleum operations in accordance with international standards or Zanzibar national standards issued under the Zanzibar Standards Act;

“waste” has the meaning as defined under Environmental Management Act;

“working environment” when pertaining to a place of employment, means the physical geographical location and the immediate surroundings where any petroleum operations is being carried out, whether permanent or temporary; and

“ZPDC” means an acronym of Zanzibar Petroleum Development Company which shall be a National Petroleum Company established under section 32 of the Act.

PART TWO SAFETY MANAGEMENT SYSTEMS

4. The ZPDC, contractor, operator or any other person engaged in the petroleum operations shall:

- (a) develop, maintain and implement a management system to ensure compliance with these Regulations;
- (b) follow up the developed management system for continuous improvement;

Duty to develop safety management systems.

- (c) ensure that representatives of the employees are informed of the management systems developed as specified under Form No. 1 in the First Schedule of these Regulations;
- (d) ensure that employees and their representatives are given the opportunity to participate in the health, safety and environmental matters;
- (e) ensure that their employees contribute to the development and maintenance of management systems as well as participate in the monitoring and continuous improvement process;
- (f) ensure that any part of subject to an administrative decision informs the representatives of the employee for the administrative decision;
- (g) ensure that management systems contribute to compliance with these Regulations and continuously identifying and reducing risks;
- (h) give a guidebook of procedures, instructions, or other routines describing the planning and implementation of activities in order to achieve the proposed objectives;
- (i) provide a procedures or instructions manual describing the handling of situations or incidents in breach of, or deviation from, regulatory or company instituted norms, standards, procedures or other requirements; and
- (j) provides a comprehensive and coordinated commercial, operational and regulatory supervision of the Petroleum operations.

5.-(1) When entering into a contract, ZPDC, contractor, operator or any other person shall ensure that persons engaged in petroleum operations:

Qualification and follow-up of persons engaged in the petroleum operations.

- (a) are qualified to fulfil the regulatory requirements and with regard to the Best International Petroleum Industry Practices relating to health, safety and environment approved by the Authority; and
- (b) comply with these Regulations and Guidelines issued by the Authority.

(2) The entities referred under sub regulation (1) of this regulation, shall ensure that a person who engaged in petroleum operations on their behalf has the requisite competence to carry out the work in a prudent and safe manner and shall ensure that:

- (a) any deficiencies in management of health, safety and the environment by persons engaged in a petroleum operations are recorded and corrected; and
- (b) the necessary adjustments are made with the respect to the management systems and that of persons engaged in the petroleum operations, to ensure the necessary uniformity.

6.-(1) The ZPDC, contractor, operator or any other person engaged in petroleum operations shall carry out verification of new installations and modifications and ensure third party verifications are carried out for all critical components.

Verification.

(2) The entities referred under sub regulation (1) of this regulation shall comply with requirements of these Regulations to determine:

- (a) the scope of verification; and

(b) the method of verification.

(3) For the purpose of this regulation, "critical component" means a component of the assembly devoid of redundancy or support restraining device whose failure may cause the failure of the whole structure or a significant part of the structure.

Training of
Zanzibaris.

7. The ZPDC, contractor, operator or any other person engaged in petroleum operations shall be obliged to provide health, safety and environment training opportunities for Zanzibaris at their plants and facilities for the purpose of on-the-job training and practical attachment program in accordance with the Oil and Gas (Local Content) Regulations.

PART THREE GENERAL PROVISIONS

General
require-
ments of
health and
safety.

8.-(1) The ZPDC, contractor, operator, or any other person engaged in petroleum operations shall:

- (a) promote a positive health, safety and environment culture in all phases and areas of operations, to minimize risk and improve health, safety and environment; and
- (b) before entering a contract, ensure that the persons assigned to perform work directly or indirectly, understand and are qualified to fulfil the relevant requirements of health and safety prescribed under these Regulations.

(2) Without prejudice the general requirement of sub regulation (1) of this regulation the entities referred above shall ensure that:

- (a) all activities are conducted in appropriate manner under these Regulations, based both on an individual and an overall assessment of all factors of relevance for planning and implementation of the activities with regards to health, safety and environment; and

- (b) an employee:
 - (i) understands the duty to contribute to the prevention of an incident and ill - health;
 - (ii) is given proper and adequate training; and
 - (iii) is provided with the information on health risks and risk of accidents on the work to be performed.

9.-(1) The ZPDC, contractor, operator or any other person engaged in petroleum operations shall: Health and Safety Plan.

- (a) have a health and safety plan that is adapted to the scope of the petroleum operations; and
- (b) submit the health and safety plan to the Authority not later than three months before the commencement of the activity in accordance with this regulation.

(2) The Health and Safety Plan prepared sub regulation (1) of this regulation shall be regularly update and comprising the management, policies and procedures of health and safety in relation to the Petroleum operations pursuant to these Regulations, including, but not limited to:

- (a) authorities and command structure of the health and safety organisation;
- (b) facilities and equipment;
- (c) operations, qualifications, Training and competence developments;
- (d) performance standards;
- (e) risk assessment;
- (f) waste management;

- (g) monitoring, testing and inspection;
- (h) the emergency response plan; and
- (i) prevention handling and mitigation measure on HIV/AIDS and other transmittable and communicable disease in the operation area also in the local community.

Risk
reduction
principles.

10. The ZPDC, contractor, operator or any other person engaged in petroleum operations shall:

- (a) prepare risk reduction plan and understand how to integrate into petroleum operations;
- (b) carry out hazard assessment and develop risk management procedures during petroleum operations of the facilities and their consequences to human life, the environment and the facilities;
- (c) review the possible source of risks that may highly occur in case of any modification or changes in petroleum operations;
- (d) replace material, equipment or procedures that could cause harm to people, damage to the environment or assets in petroleum operations, with factors that, in an overall assessment, have less potential for harm or damage; and
- (e) adopt solutions that reduce uncertainty in accordance with the Best International Petroleum Industry Practice approved by the Authority in the event of insufficient knowledge about the potential effects of technical operational or organizational solutions on health, safety or the environment.

11. The ZPDC, contractor, operator or any other person engaged in petroleum operations shall arrange all the procedures to protect the community where the facility is located or where petroleum operations is taking place from impacts of a facility or during the petroleum operations in compliance with the applicable laws, standards approved by the Authority and with regard to the Best International Petroleum Industry Practices.

Community health and safety.

12.-(1) The ZPDC, contractor, operator or any other person engaged in petroleum operations shall ensure that:

Safety signs.

- (a) safety signs are posted at the entrance to a room, zone or equipment where employees are likely to be exposed to hazards, incidents or accidents, or at the restricted areas;
- (b) there is an adequate response and rescue against hazards, incidents, or accidents;
- (c) evacuation equipment as well as the route to the evacuation equipment is marked with safety signs; and
- (d) any other notices warning the employees and other people at the facility about a specific condition in the interest of safety to life and property, are made visible.

(2) The safety signs shall be posted in a manner prescribed in the Second Schedule of these Regulations.

13.-(1) The ZPDC, contractor, operator or any other person engaged in petroleum operations shall prepare and submit to the Authority, safety case not later than six months before the commencement of operation.

Safety case.

(2) A Safety case submitted in accordance with sub regulation (1) shall indicate:

- (a) a description of the petroleum facility;

- (b) the technical and other control measures;
- (c) risk and emergency preparedness analysis conducted in accordance with these Regulations;
- (d) relevant information relating to the part of the management systems that is designed to ensure compliance with applicable health and safety legislation and at continuously identifying and reducing risks to a level as low as reasonably practicable at petroleum facilities; and
- (e) an emergency preparedness plan prepared in accordance with these Regulations.

(2) The entities referred under sub regulation (1) of this regulation shall follow up the conditions established in the safety case.

(3) Subject to the provisions of sub regulation (1) of this regulation, the Authority may request the ZPDC, contractor, operator or any other person engaged in petroleum operations to submit a bridging document in relation to one or more Safety cases or health and safety plans.

(4) A Safety case shall:

- (a) relate to a specific petroleum facility or proposed petroleum in a specified location;
- (b) correlate with petroleum facility or proposed petroleum facility and activity to be carried out at the facility;
- (c) be prepared in consultation with an independent and competent person and the workers on the facility; and
- (d) be a true reflection of the state of safety arrangements for an existing or proposed petroleum facility.

(5) Where there is a significant modification, change or new stage of existing petroleum facilities not already catered for in an existing Safety case, the entities referred under sub regulation (1) of this regulation shall submit a revised Safety case to the Authority within six months of modification, change or introduction of new stage of existing petroleum facility or in any event, within five years of submission of the most recently submitted Safety case.

(6) For the purpose of sub regulation (6) of this regulation "significant modification" means a major alteration or significant deviation of the original design of petroleum facility that may have health, safety and environmental implication.

14.-(1) The ZPDC, contractor, operator or any other person engaged in petroleum operations shall ensure that every employee has the competence necessary to carry out duties in accordance with the Act and these Regulations.

Training in safety and working environment.

(2) An employee shall have training in occupational health and safety and in handling incidents, hazards and accidents.

(3) An employee who works with radioactive sources shall have completed theoretical and practical radiation protection training.

(4) The entity referred under sub regulation (1) of this regulation shall undertake training upon employment, transfer or change of work tasks, introduction of new work equipment or changes to the equipment and upon introduction of new technology that applies to the employee's workplace or work tasks.

(5) The training shall be modified according to the new risk in the petroleum operations and shall be repeatedly whenever necessary.

15. The ZPDC, contractor, operator or any other person engaged in petroleum operations shall:

Instructions and emergency procedures.

- (a) provide instructions to be followed during an emergency incident and shall ensure that every employee knows the functions under the instructions; and
- (b) send a copy of the instructions and any subsequent alterations of the instructions to the Authority.

Manual of instructions.

16.-(1) The ZPDC, contractor, operator or any other person engaged in petroleum operations shall prepare a manual of instructions for safety in operations and bring it to the attention of every employee or any other person participating in a petroleum activity.

(2) An employee or any other person participating in a petroleum activity shall comply with the requirements of the manual of instructions which are relevant to the duties to be performed.

Responsibility of person in charge.

17.-(1) The person-in-charge shall supervise the operations under command to ensure that:

- (a) employees are working in a safe condition; and
- (b) All tools and equipment are maintained in a safe working condition for the avoidance of doubt.

(2) The ZPDC, contractor, operator or any other person shall remain liable for the actions of the person-in-charge.

Responsibility of the employee.

18.-(1) An employee shall cooperate on operation of measures put in place by the contractor to create a satisfactory and safe working environment.

(2) Use the personal protective equipment provided by the contractor or operator, exercise caution and contribute to prevention of accidents, incidents and injury.

(3) Immediately notify an operator, the safety representative and other employees when he or she becomes aware of any faults or defects that may cause danger to life or health.

(4) Discontinue work where the employee considers that the work cannot continue without causing danger to life or harm to the environment.

(5) Notify the person-in-charge where another employee suffers injury at work or contracts diseases which the employee believes to result from the work or conditions at the working premises.

(6) An employee charged with supervision of other employees shall ensure observance of safety and health precautions.

19.-(1) The ZPDC, contractor, operator or any other person engaged in petroleum operations shall always keep a record of every person on the facility. Record of persons on a facility.

(2) The record referred to under sub regulation (1) of this regulation shall:

- (a) specify particulars of the persons on the facility; and
- (b) always made available for examination by an authorised officer.

20.-(1) The ZPDC, contractor, operator or any other person engaged in petroleum operations shall annually engage an independent person to carry out health and safety audits and submit a report to the Authority in accordance with these Regulations and any other applicable laws. Audit of safety management systems.

(2) The entities referred under sub regulation (1) of this regulation shall:

- (a) set and monitor other aspects of the safety management system and performance standards for the audit and review process;
- (b) carrying out the audits under sub - regulation (2) of this regulation be independent and competent to ensure that the audit is objective and provides the required independent perspective; and

- (c) establish performance standards to identify responsibilities, timings, and systems for reviewing the safety management systems.

(3) For purposes of this regulation, "audit" means the structured process of collecting independent information on the efficiency, effectiveness, and reliability of the total safety management system for a facility or petroleum activity and drawing up plans for corrective action.

Use of
English
language.

21. English language shall be used in all communications and activities at a facility or during petroleum operations to the extent possible; however, any other language may be used provided such as Swahili, its use does not compromise health and safety of the employees.

PART FOUR GENERAL REQUIREMENTS ON DESIGN AND OPERATIONS OF PETROLEUM FACILITY

Choice of
Develop-
ment
concept.

22.-(1) The ZPDC, contractor, operator, or any other person shall in choosing a development concept, comply with the provisions of these Regulations and take into consideration the:

- (a) major accident risk;
- (b) type of operation;
- (c) risk of environmental damage;
- (d) geographical location;
- (e) location conditions;
- (f) reservoir properties;
- (g) regulatory requirements;
- (h) lifetime of the facility;

- (i) any subsequent removal; and
- (j) need to develop new technology.

(2) The entities referred under sub regulation (1) of this regulation shall ensure that:

- (a) the design, construction, installation of petroleum facilities is executed in a manner that the petroleum facilities operated and removed in a safe and prudent manner; and
- (b) subsea facilities and pipeline systems are designed, constructed, and installed in a manner that can ensure that withstand mechanical damage caused by other operations, and do not damage fishing gear or obstruct fishing activity to an unreasonable extent.

23.-(1) The ZPDC, contractor, operator, or any other person engaged in the petroleum operations shall define the main safety functions in a clear manner for each individual petroleum facility to ensure personnel safety and prevent pollution. Main safety functions.

(2) For a petroleum facility which is permanently manned, the entities referred under sub regulation (1) of this regulation shall maintain the following Main safety functions in the event of an accident situation by:

- (a) prevention of the escalation of accident situations to ensure that personnel outside the immediate accident area are not injured;
- (b) maintenance of the integrity of load bearing structures until the petroleum facility has been evacuated;
- (c) protection of rooms of the significance to combat accidents so that the rooms remain operative until the petroleum facility has been evacuated;

- (d) protection of the secured areas of the petroleum facility so that the areas remain constant until the petroleum facility has been evacuated; and
- (e) maintenance of at least one escape route from every area where personnel are found until evacuation to the safe areas of the petroleum facility and rescue of personnel have been completed.

(3) The entities referred under sub regulation (1) of this regulation shall equip petroleum facilities with the necessary safety function that can be at all times:

- (a) detect abnormal conditions;
- (b) prevent abnormal conditions from developing from hazard and accident situations;
- (c) limit the damage caused by accidents;
- (d) specify performance requirements for safety functions; and
- (e) make the status of safety functions available in the central control room.

Design of
petroleum
facility.

24.-(1) The ZPDC, contractor or any other person engaged in petroleum operations shall ensure that a petroleum facility is designed to be simple and strong as possible, and ensure that:

- (a) can endure the loads determined in these Regulations;
- (b) accident risks are eradicated or reduced to as low as reasonably possible;
- (c) a failure in one element, system or single mistake does not result in adverse consequences;

- (d) the safety functions specified in these Regulations maintained;
- (e) handling of materials and transport can be carried out in an efficient and in careful manner;
- (f) escape routes are designed such that all evacuation can take place in a safe way, simple and timely manner;
- (g) a safe working environment is facilitated and maintained;
- (h) operational assumptions and restrictions are safeguarded in a prudent manner;
- (i) health-related matters are safeguarded in sensible manner;
- (j) risk of pollution is reduced to low as reasonably practicable; and
- (k) the petroleum facility is maintained in a regular basis.

(2) Without prejudice the generality of sub regulation (1) of this regulation the ZPDC, contractor or any other person engaged in petroleum operations shall:

- (a) approve and maintain a strategy for protecting the petroleum facility against fire and explosion; and
- (b) classify the areas of the petroleum facility in a manner as to ensure that the design and location of areas and equipment contribute to reduce risks associated with the fire and explosion.

25.-(1) The ZPDC, contractor or any other person engaged in petroleum operations where the petroleum operations entails the use of a new technology or new methods shall ensure that:

Qualification
and use of
new
technology.

- (a) criteria are established for development, testing and use of that technology or methods to fulfil the requirements for health, safety and the environment;
- (b) criteria are suitable for the relevant conditions of use, and the new technology and method is adapted to solutions which already accepted; and
- (c) the qualification or testing demonstrates that applicable requirements can be fulfilled using the relevant new technology or method.

(2) For the purposes of this regulation “new technology” means a method, process, equipment or devices which may have limited information on health, safety and environmental implications but can be adopted to suit a solution which already acceptable.

Materials.

26.-(1) The ZPDC, contractor or any other person engaged in petroleum operations shall ensure that in the selection of materials to be used in or on a petroleum facility, the following shall be considered:

- (a) the load requirements;
- (b) manufacturing, joining and construction processes;
- (c) possible use of materials for protection;
- (d) fire-resistance properties of the materials;
- (e) probable changes in operating conditions;
- (f) the opportunity to reduce future use chemicals and pollution;
- (g) the opportunity to reduce future, re-use and recover waste;
- (h) the health and working environment of employees; and

- (i) decommissioning and potential future removal of the petroleum facility.

27. The ZPDC, contractor, operator or any other person engaged in petroleum operations shall ensure that installations systems, and equipment are designed in a robust manner in accordance with standards approved by the Authority and with regard to the Best International Petroleum Industry Practices to ensure that:

Installations, systems and equipment.

- (a) can be operated, tested and maintained without endangering human life, health, environment and material assets;
- (b) is suitable for use and able to withstand the loads which is exposed to during operation;
- (c) are clearly marked to facilitate safe operation and prudent maintenance; and
- (d) the caverns are secured to prevent leaks from the installation.

28.-(1) The ZPDC, contractor, operator, or any other person engaged in petroleum operations shall ensure:

Pipeline systems.

- (a) a pipeline is designed in a manner that will enable interior maintenance to be performed;
- (b) a chamber for sending and receiving cleaning and inspection tools is designed in a manner that the chamber cannot open or be opened under pressure; and
- (c) utilization factors, any load and materials factors for flexible pipeline systems and pipeline systems made of materials other than steel, are documented in a manner that the safety level for these systems are not

lower than the safety levels for steel pipelines and steel risers.

(2) For the purposes of this regulation "steel rise" means a flexible steel pipe or an assembly of steel pipe used to:

- (a) transfer fluids produced from the seabed to the surface facility or injection fluids or control fluids; or
- (b) lift gas from the surface facility and the seabed.

Electrical
installations.

29.-(1) The ZPDC, contractor, operator, or any person engaged in petroleum operations shall ensure an electrical installation is designed with safeguards and other protection in order to prevent abnormal conditions and faults that can be hazardous to the personnel and the petroleum facility.

(2) The entities covered under sub regulation (1) shall ensure that a petroleum facility is designed with adequate protection against situations including:

- (a) electrical shock during normal use and in the event of fault;
- (b) thermal effect;
- (c) overcurrent;
- (d) fault current;
- (e) overvoltage;
- (f) under voltage;
- (g) variations in voltage and frequency;
- (h) power supply failure;

- (i) ignition explosive gas atmosphere;
- (j) electromagnetic interference;
- (k) health hazards; and
- (l) other hazardous conditions.

30.-(1) The ZPDC, contractor, operator, or any person engaged in petroleum operations shall ensure that a petroleum facility is equipped with:

Instrumentation for monitoring and recording.

- (a) instrumentation for monitoring and recording conditions and parameters that are significant in verifying the results from analyses and parameters of relevance to further use of petroleum facility; and
- (b) instrumentation for recording environmental data is relevant to the petroleum operations.

(2) The first petroleum facility of a new type shall be outfitted with instruments to collect data to verify the recorded measurements.

(3) The entities referred under sub regulation (1) of this regulation shall ensure install fixed reference electrodes on the first petroleum facility in areas where corrosion conditions differ from areas where experience has been gained.

31.-(1) The ZPDC, contractor, operator, or any person engaged in petroleum operations shall ensure that:

Communication system.

- (a) equipment for external communications is selected based on operational needs, the type of activity and defined hazard and accident situation;
- (b) communication equipment and associated power supplies are designed and protected to ensure that the

communication equipment and power supply functions can be maintained in hazard and accident situations;

- (c) a petroleum facility which is temporarily or permanently manned are outfitted with communication systems that enable continuous communication internally on the facility, and between the facility and ships, aircraft, land, and other installation; and
- (d) a petroleum facility is outfitted with alarm systems that can notify the personnel at all times of hazard and accident situations.

Marking of petroleum facility.

32. The ZPDC, contractor, operator, or any person engaged in petroleum operations shall ensure that:

- (a) a petroleum facility is marked for easy identification in a manner that other traffic in the area is notified;
- (b) an anchor and making buoy is marked in a corresponding manner;
- (c) navigation marks are in place; and
- (d) an anchor point placed outside the safety zone is marked with yellow anchor buoys with yellow reflectors, and if applicable, with yellow flashing lights.

Marking of equipment and cargo.

33. The ZPDC, contractor, operator, or any person engaged in petroleum operations shall ensure that cargo and equipment that are transported or used for transport to and from a petroleum facility or a vessel that participates in the petroleum operations are clearly marked with the name of the owner, facility, or vessel.

Placement of petroleum facility and choice of route.

34. The ZPDC, contractor, operator, or any person engaged in petroleum operations shall ensure that a petroleum facility including a well is placed at a safe distance from other facilities and objects such as light houses, beacons, cables, pipelines, and vulnerable environmental

resources in order to ensure that the petroleum facility does not create unacceptable risk to other facilities, settlements or the external environment.

35. The ZPDC, contractor, operator or any person engaged in petroleum operations shall ensure that:

Installations of equipment for manned underwater operations.

- (a) a diving bell has adequate internal capacity for safe operations;
- (b) compression chamber for saturation diving has suitable height and adequate internal volume for each person; and
- (c) the umbilical to a subsea chamber which:
 - (i) allows for controlled disconnection in the event that the support vessel loses its position; and
 - (ii) is readily accessible so that necessary supplies to the subsea chamber can be re-established.

36.-(1) The ZPDC, contractor, operator, or any person engaged in petroleum operations shall ensure that:

Loads, load effects and resistance.

- (a) the loads that can affect a petroleum facility or a part of the petroleum facility is determined; and
- (b) accidental loads and natural loads do not result in loss of a main safety function.

(2) The entities referred under sub regulation (1), engaged in petroleum operations shall ensure that:

- (a) when stipulating loads, the effects of seabed subsidence over, or in connection with reservoir, are considered, such that when functional and natural loads combine

in the most unfavourable it should not result in failure;
and

- (b) a petroleum facility or a part of the petroleum facility can always withstand the design loads and probable combinations of these loads.

Equipment
for food
and
drinking
water.

37. The ZPDC, contractor, operator, or any person engaged in petroleum operations shall ensure that equipment for food and drinking water comply with the applicable laws and these Regulations.

PART FIVE SPECIFIC REQUIREMENTS IN RELATIONS TO ONSHORE PETROLEUM OPERATIONS

Entry into
land.

38. The ZPDC, contractor, operator, or any person engaged in petroleum operations shall ensure before:

- (a) entering on land engage the communities in which the contract area is situated in consultation with appropriate authorities to ensure that lawful occupier of land is adequately informed of the operation to be undertaken, the approximate duration of the operation, and the potential damage that could be caused to property;
- (b) commencement of upstream petroleum operations on onshore, obtain the required approvals and permits from the Authority; and
- (c) entering on land, notify the Authority in writing of the intentions at least three months before making the entry.

Protections
of
infrastru-
cture,
public
utilities,
facilities
and
installa-
tions.

39.-(1) The ZPDC, contractor, operator or any other person engaged in petroleum operations shall ensure that:

- (a) there is no interference with any existing infrastructure, public utility, facility and installations during the

performance of any petroleum operations, unless otherwise approved by the Authority after consultation with Commission for land; and

- (b) public utilities, infrastructure, facilities and installations close to the operation site as well as others who may be affected by petroleum operations are protected.

(2) When a blowout occurs during a drilling operation in an area which is close to a community, the entity referred under sub regulation (1) of this regulation shall:

- (a) immediately inform the Authority and emergency services; and
- (b) take the necessary steps to safeguards the general public.

40.-(1) The ZPDC, contractor, operator or any other person engaged in petroleum operations shall: Location survey.

- (a) determine the location and elevation of a well before the well is spudded; and
- (b) submit to the Authority a certified plan and finally survey report not later than one month after the completion of the survey.

(2) The entities referred under sub regulation (1) of this regulation, shall in consultation with the Authority, decide the method for location and elevation of the well.

41. The ZPDC, contractor, operator, or any other person engaged in petroleum operations shall not drill a well in a prohibited area unless authorized by the Authority in writing. Drilling in prohibited area.

Land rig.

42. The ZPDC, contractor, operator, or any other person engaged in petroleum operations shall ensure that:

- (a) a land rig is designed, secured and adequately size for wells to be drilled, and in accordance with applicable laws and these Regulations;
- (b) a land rig is equipped with mast head lighter; and
- (c) a structural change or modification is not made to a land rig without the written consent from the Authority.

Spudding-in.

43. The ZPDC, contractor, operator, or any other person engaged in petroleum operations shall ensure that, a well is not spudded, and re-entry of a rig-assisted well is not started until the rig and its associated equipment are completely rigged up and reliable communications have been established.

Protection of completed well.

44.-(1) The ZPDC, contractor, operator, or any other person engaged in petroleum operations shall ensure that a completed well is:

- (a) fenced and adequately protected; and
- (b) clearly marked with warning notices of existing danger.

(2) The entities referred under sub regulation (1) of this regulation, engaged in petroleum operations shall ensure that where installed, the well site fencing protecting the wellhead from outside interference is replaced upon completion of a repair operation.

Identification of well and production facility.

45. The ZPDC, contractor, operator, or any other person engaged in petroleum operations shall mark each well and production facility with a notice in clear, legible letters of a type and size determined by the Authority.

Siting of production facility.

46.-(1) The ZPDC, contractor, operator, or any other person engaged in petroleum operations shall ensure that a production facility and the components of a production facility are sited in a manner as to reduce risk as low as reasonably practicable.

(2) The entities referred under sub regulation (1) of this regulation shall ensure that:

- (a) similar production facilities are grouped, and dissimilar production facilities are not located within proximity of each other; and
- (b) a separator is not enclosed within a bund or firewall surrounding a tank or group of tanks.

47. The ZPDC, contractor, operator, or any other person engaged in petroleum operations shall ensure that a lifting operation:

Lifting operations onshore.

- (a) is cleared in accordance with these Regulation;
- (b) is managed and conducted in a prudent manner, such that the personnel do not come under suspended loads; and
- (c) involved the transportation of personnel is only carried out by using a lifting appliance that is specially designed and approved by the Authority for that purpose.

48. The ZPDC, contractor, operator, or any other person engaged in petroleum operations shall ensure:

Tanks and storage.

- (a) a permanent tank that used to store the petroleum liquids or batteries of tanks, is designed and constructed in a safe and prudent manner; and
- (b) crude oil is stored in a manner to as to avoid a spillage and contamination of water bodies and ground water.

49. The ZPDC, contractor, operator, or any other person engaged in petroleum operations shall ensure that:

Siting of flares.

- (a) flare stack, a flare pit, a flare line is designed, constructed and sited in a manner that enables sufficient

sizes to contain and direct produced fluids away from the petroleum facility, property, natural vegetation and personnel; and

- (b) Where large volume of gas or oil are to be burnt and topographic conditions do not allow the flare line to be extended further than to acceptance distance, shall ensure that a flare shield is constructed in a manner and of a standard that will further ensure the safety of the petroleum facility, property, natural vegetation and personnel.

Depressurisation and flare system.

50.-(1) The ZPDC, contractor, operator, or any other person engaged in petroleum operations shall ensure that:

- (a) onshore facilities that are equipped with or connected to process facilities have a pressurisation and flare system;
- (b) it is possible to activate the pressurisation manually from the central control room; and
- (c) liquid separators installed in the flare system are secured against overfilling.

(2) The ZPDC, contractor, operator, or any other person engaged in petroleum operations shall ensure that the depressurisation and flare system referred to in sub regulation (1) of this regulation is designed:

- (a) to prevent escalation hazard and incident situation by quickly reducing the pressure in the equipment; and
- (b) in a form that the released gas does not harm personnel or equipment.

Restoration of site.

51. The ZPDC, contractor, operator, or any other person engaged in petroleum operations shall ensure that on the completion, suspension or

abandonment of a well, the well site and any surrounding area giving access to the well is restored near to the original state as prescribed under the Act and these Regulations.

PART SIX PROCESS SAFETY

52.-(1) The ZPDC, contractor, operator, or any other person engaged in petroleum operations shall prepare a safety concept for the purposes of:

Safety
concept.

- (a) demonstrating that a major accident prevention policy and a safety management system for implementing it have been put into effect in accordance with the Act, these Regulations and any other applicable law;
- (b) demonstrating that the major accident, hazards and possible major accident scenarios in relation to the facility or petroleum operations have been identified and the necessary measures have been taken to prevent such accidents and to limit the consequences to human health and environment;
- (c) demonstrating that adequate safety and reliability have been taken into account in the design, construction, operation and maintenance of an installation, storage facility, equipment and infrastructure connected with the facility's operation which are linked to major incidents, hazards or accidents inside the facility;
- (d) demonstrating that an emergency plan has been prepared in accordance with these Regulations, Act and any other applicable laws; and
- (e) providing sufficient information to the Authority to enable decisions regarding the siting of new petroleum operations or developments around the facility.

(2) The safety concept prepared by the ZPDC, contractor, operator, or any other person engaged in petroleum operations shall:

- (a) contain as a minimum data and information; and
- (b) identify the personnel and organisations involved in preparing the safety concept.

(3) The entities referred under sub - regulation (1) of this regulation shall submit a safety concept to the Authority where the facility is:

- (a) a new facility, within three months prior to:
 - (i) the start of construction of the facility;
 - (ii) the start of operation of the facility; and
 - (iii) any substantial modifications leading to a change in the inventory of hazardous substances at the facility; and
- (b) in existence, within six months from the date of commencement of these Regulations.

(4) The entities referred under sub regulation (1) of this regulation shall not be required in a safety concept to include any information previously sent to the Authority under sub regulation (3) of this regulation.

(5) The entities referred under sub regulation (1) of this regulation shall not start construction of a facility, operation of a facility or make any alteration or substantial modifications to a facility before the Authority approves the safety concept submitted under this regulation.

(6) The Authority shall within sixty days from the date of receipt of a safety concept:

- (a) communicate the conclusions of its examination of that safety concept to such entities; or
- (b) if necessary, recommend prohibiting the bringing into operation or continued operation of a facility or any part of a facility in accordance with the Act and these Regulations.

53.-(1) The ZPDC, contractor, operator, or any other person engaged in petroleum operations shall review the safety concept in every five years, and where necessary, revise the safety concept of where: Review
of safety
concept.

- (a) following a major incident or accident at a facility;
- (b) a review is justified by new facts or by technological knowledge about safety matters, including knowledge arising from analysis of accidents or near misses;
- (c) a review is justified by developments in knowledge concerning the assessment of hazards;
- (d) before making any alteration or substantial modification to a facility, process or the nature or physical form or quantity of hazardous substances which may have significant consequences for major incidents, hazards or accident; or
- (e) following any change to the safety management system which may have significant consequences for the prevention of major accidents or the limitation of the consequences of major accidents to human health and the environment.

(2) The entities referred under sub-regulation (1) of this regulation shall, in carrying out a review of a safety concept take into account the minimum data and information specified under Form No. 2 in the First Schedule of these Regulations.

(3) The entities within twenty-one days from the date of completion of the revision, shall submit the revised safety concept or revised parts of the safety concept to the Authority for approval.

(4) The Authority shall approve the submitted revised safety concept or revised parts of the safety concept before the commencement of the alteration or substantial modification of a facility.

(5) Where a safety concept has been reviewed under this regulation but not revised, the Authority shall be informed in writing within twenty-one days from the date of completion of the review.

Measures
to reduce
risk.

54.-(1) The ZPDC, contractor, operator, or any other person engaged in petroleum operations shall ensure that in reducing risk:

- (a) select technical, operational and organisational solutions that reduce the probability of harm, errors, incidents, hazards, and accident situations that may occur;
- (b) establish barriers choose solutions and barriers with the greatest risk-reducing effect based on an individual as well as an overall evaluation; and
- (c) ensure that collective protective measures are preferred over protective measures aimed at individual facilities and activities.

(2) The entities referred under sub regulation (1) of this regulation shall implement risk reducing measure for each defined dimensioning accidental event to ensure that:

- (a) employees outside the immediate vicinity of the accident are not injured;
- (b) evacuation on and from a facility can be carried out in a safe and organised manner;

- (c) employees can remain safe in one or more areas of an affected installation or facility until safe evacuation is carried out;
- (d) control rooms and any other areas of importance within the facility to combat an accidental event remain operational until safe evacuation is carried out;
- (e) external assistance can be received and carried out effectively;
- (f) damage to the environment is avoided or minimized; and
- (g) give priority to probability reducing measures over consequence to the extent practicable.

55.-(1) The ZPDC, contractor, operator, or any other person engaged in petroleum operations shall establish barriers that: Barriers.

- (a) reduce the probability of failures, incidents, hazards, and accident situations from increasing; and
- (b) limit possible harm from failures, incidents, hazards, and accidents.

(2) The entities referred under sub regulation (1) of this regulation shall put in place strategies and principles that form the basis for the design, use and maintenance of barriers to ensure the functions of the barriers is safeguarded throughout the life of the facility or petroleum operations.

(3) The entities referred under sub regulation (1) of this regulation shall ensure that:

- (a) employees are aware of the barriers that have been established and the functions intended to fulfil the performance requirements defined in respect of the

technical, operational or organisational elements necessary for the individual barrier to be effective;

- (b) employees are aware of the barriers that are not functioning or have been impaired; and
- (c) implementation of the necessary measures to remedy or compensate for missing or impaired barriers.

Acceptance
criteria.

56.-(1) The ZPDC, contractor, operator, or any other person engaged in petroleum operations shall draw up acceptance criteria for risk in each petroleum operations undertaken for each facility.

(2) The acceptance criteria referred to in sub regulation (1) of this regulation shall be drawn up with reference to the safety objectives of the company, standards approved by the Authority and with regard to the Best International Petroleum Industry Practices.

(3) The acceptance criteria shall:

- (a) take into account the probability and the consequences of identified accidental events;
- (b) reflect the safety objectives and characteristics of the petroleum activity or facility concerned;
- (c) be subjected to an assessment regarding the need for revision through the various phases of the operation, where factors including operational experience, modifications and new technology shall be considered; and
- (d) constitute the basis for the selection of dimensioning accidental events.

(4) The entities referred in sub - regulation (1) of this regulation shall submit to the Authority documentation for the evaluations on which the stipulation of acceptance criteria is based.

57.-(1) The ZPDC, contractor, operator, or any other person engaged in petroleum operations shall carry out operations in a safe and proper manner, in accordance with the Act, these Regulations, any other applicable law, standards approved by the Authority and with regard to the Best International Petroleum Industry Practices.

Require-
ments
relating to
petroleum
operations.

(2) The facilities shall be suitable for the intended use and manned to ensure safety during normal operations and in emergency situations.

(3) The equipment and protective systems intended for use in potentially explosive atmospheres on fixed installations and devices for use outside the explosive atmosphere comply with the requirements under these Regulations.

58.-(1) The ZPDC, contractor, operator, or any other person engaged in petroleum operations shall develop process safety management to ensure that:

General
requirements
relating
to process
safety.

- (a) employees participate in conducting and developing process hazard analysis and other elements of process management;
- (b) there is availability of process safety information pertaining to hazards of the highly hazardous chemicals used or produced by the process, the technology of the process and equipment in the process;
- (c) process hazard analysis is performed on each element of the covered process;
- (d) employees are trained in process safety management, covering process hazards and safe work practices;
- (e) any other person involved in or around the covered process are informed of the required process safety management elements;

- (f) pre-start up safety review is done for initial start-up, following turn-around or after emergency shut down;
- (g) an operating procedure has clear written instructions for all expected phases of operation;
- (h) mechanical integrity of critical process equipment and other equipment is designed, installed and operated properly;
- (i) a hot work permit is issued for hot work operations conducted on or near a covered process;
- (j) management of change and procedures to manage the changes, including technical basis for the change, impact of the change on employee safety and health and time period for change;
- (k) incident investigation is done by an appropriate and qualified team and a report highlighting the date, description and factors contributing to incident, date of start of investigation and recommendations is issued;
- (l) emergency planning and response including emergency action plan for the entire facility, emergency evacuation written plans, evacuation maps and assembly points are issued;
- (m) compliance audit is done to evaluate the compliance with standards approved by the Authority and with regard to the Best Petroleum Industry Practices for effective process safety management implementation; and
- (n) where an operator enters into any agreement with a clause for the protection of trade secrets, the clause shall exclude a confidentiality agreement of non-disclosure

of information relating to implementation of a process safety management plan.

(2) The process and auxiliary facilities shall operate to ensure that any failure during operation does not lead to an incident, hazard, or accident.

(3) The principle under sub regulation (2) of this regulation shall apply to operational errors and equipment failure.

59.-(1) The ZPDC, contractor, operator, or any other person engaged in petroleum operations shall ensure that each facility has a process safety system, which shall include:

- (a) a plan for employee training on operational hazards;
- (b) procedure for management of:
 - (i) change in operations;
 - (ii) process hazards;
 - (iii) maintenance of mechanical integrity;
 - (iv) hot work permits;
 - (v) process safety information;
 - (vi) pre-start review;
 - (vii) operating procedure;
 - (viii) mechanical integrity;
 - (ix) incidents investigation;
 - (x) emergency plan and response;
 - (xi) compliance audit;
 - (xii) change; and
 - (xiii) trade secret and process safety related information.
- (c) a safe transportation management system where the project includes a transportation component for raw or processed hazardous materials;

- (d) a procedure for handling and storage of hazardous materials;
- (e) emergency planning and the preparation and implementation of an emergency management plan;
- (f) be designed to enter or maintain a safe condition if a fault occurs that can prevent the system from functioning;
- (g) be designed with independent levels of safety to protect equipment;
- (h) require that components incorporated in the process safety system are suitable for the loads to which may be subjected;
- (i) require that sensors activating shutdown functions give a warning signal when activated;
- (j) require that block valves incorporated in the process safety system are secured in correct position;
- (k) provide the system to ensure that appropriate testing of the process safety is possible without interrupting the operations; and
- (l) contain any other relevant information.

(2) The process safety system referred to in sub regulation (1) of this regulation, shall be able to perform its functions independently of other systems.

Implementa-
tion of
the process
safety
program.
me.

60.-(1) A process safety program shall be implemented in accordance with the standards approved by the Authority, these Regulations and with regard to the Best International Petroleum Industry Practices.

(2) A process safety program referred to sub regulation (1) of this regulation shall include:

- (a) physical hazard testing of materials and reactions;
- (b) hazard analysis studies to review the process chemistry and engineering practices;
- (c) examination of preventive maintenance and mechanical integrity of the process equipment and utilities;
- (d) employee training; and
- (e) development of operating instructions and emergency response procedures.

61. The ZPDC, contractor, operator, or any other person engaged in petroleum operations shall ensure that a petroleum facility equipped with a process facility has a gas release system that is: Gas release system.

- (a) capable of preventing the escalation of hazards and an incident situation by promptly reducing the pressure in the equipment;
- (b) designed in a manner that prevents the release of gas from causing harm to a person or equipment;
- (c) able to manually trigger the depressurization from the central control system; and
- (d) secure a liquid separator installed in the gas release system against overfilling.

62.-(1) A facility shall be installed with an emergency shutdown system which shall be: Emergency shutdown system.

- (a) able to prevent or mitigate the development of an incident, hazard or accident and limit the consequences of the incident, hazard or accident;

- (b) able to perform the intended functions independently of other systems and have a simple and clear command structure;
- (c) designed to maintain safe conditions in case of a fault that may prevent the system from functioning; and
- (d) capable of being activated manually from trigger stations that are in strategic locations on the facility or from the control room.

(2) The ZPDC, contractor, operator, or any other person engaged in petroleum operations shall ensure that:

- (a) the emergency shutdown valves are installed to stop streams of petroleum and chemicals to and from a facility;
- (b) the emergency shutdown valves are able to isolate the fire areas of a facility;
- (c) components incorporated in the system are designed for the loads to which may be subjected;
- (d) the system can be tested without interrupting operations or compromising on the safety of a facility;
- (e) all accessible emergency shutdown valves are equipped with position indicator and the status of the completed action can automatically be transferred to the control room; and
- (f) re-setting of emergency shutdown valves is performed in a safe and controlled manner.

Material
handling,
transport
routes,
access and
evacuation
routes.

63. The ZPDC, contractor, operator, or any other person engaged in petroleum operations shall ensure that:

- (a) a facility and transport route can handle material and employees traffic in a manner that ensures health, safety and environment protection;
- (b) material is handled by a mechanical system and technical appliances; and
- (c) the facility has a stairway or ramp where access routes between different levels are used daily and at least two escape routes from areas with regular traffic.

64. The ZPDC, contractor, operator, or any other person engaged in petroleum operations shall:

Lifting
appliances
and
equipment.

- (a) ensure that equipment for employee's transport is designed to ensure safety for the employees carrying out petroleum operations above normal work height;
- (b) designate a person responsible to ensure that lifting operations are carried out using lifting appliances especially normal designed for that purpose and certified by an inspector; and
- (c) ensure that lifting appliances and operations comply with the requirements of any relevant laws, these Regulations, standards approved by the Authority and with regard to the Best International Petroleum Industry Practices.

65.-(1) The ZPDC, contractor, operator, or any other person engaged in petroleum operations shall ensure that a facility has control and monitoring systems with associated alarms to warn of incidents, variations or faults that are significant to health, safety and working environment.

Control
and
monitoring
system.

(2) The alarms referred under sub regulation (1) of this regulation shall be issued in such a way that can be perceived and

responded to within the time required for safe use of equipment, plant and processes.

Control room.

66. The ZPDC, contractor, operator, or any other person engaged in petroleum operations shall be obliged to ensure that:

- (a) the structure of the control room is suitable to withstand possible major incidents, hazards, or accidents; and
- (b) the layout of the control room and arrangement of panels shall ensure effective ergonomic operation of a facility in both normal circumstances and emergency situations.

Ballast system.

67.-(1) The floating facilities shall be equipped with a system that can ballast any ballast tank under normal operational conditions.

(2) In the event of unintended flooding of any space adjacent to a water body, it shall still be possible to ballast.

Drainage systems.

68. The ZPDC, contractor, operator, or any other person engaged in petroleum operations shall ensure that the facility is:

- (a) equipped with open drainage systems that can collect and divert petroleum, chemicals, and other liquids so that the risk of fire, harm to employees and pollution to the environment is minimised; and
- (b) designed to ensure that any discharge of petroleum, chemicals or other liquids results in the least possible pollution of the environment.

PART SEVEN GENERAL REQUIREMENTS OF WORKING ENVIRONMENT IN PETROLEUM OPERATIONS

Working environment.

69.-(1) The ZPDC, contractor, operator, or any other person engaged in petroleum operations shall ensure that:

- (a) standards of safety, health and working environment are continuously developed and improved in accordance with the relevant laws;
- (b) when planning and arranging the work, emphasis is placed on ensuring safety and health and preventing injuries of employees;
- (c) the organisation, arrangement and management of work, working hours, pay systems, including use of performance-related pay and technology are arranged to ensure that employees are not exposed to adverse effect on health;
- (d) the facility is designed for the convenience of both female and male employees;
- (e) passageways, sanitary facilities and work equipment are to the extent possible designed to cater for employees with disabilities;
- (f) every person on a facility bears an identity card;
- (g) the facility is in good hygiene and sanitation;
- (h) the physical working environment caters for buildings and equipment, indoor climate, lighting, noise and radiation;
- (i) the workplace is equipped and arranged to avoid adverse physical strain on the employees; and
- (j) when machines and other work equipment are being installed and used, care is taken to ensure that employees are not subjected to strain because of vibration and uncomfortable working positions.

(2) The entities shall provide the necessary aids to the employees in accordance with the relevant laws and these Regulations.

(3) When handling chemicals or biological substances, the working environment shall be arranged to protect employees against exposure to accidents or injuries to health.

Duty in
ensuring
a safe and
healthy
environ-
ment.

70.-(1) The ZPDC, contractor, operator, or any other person engaged in petroleum operations shall ensure that work at all levels of the facility is performed in accordance with the Occupational Safety and Health Act and through cooperation with the employees and their representatives appointed under these Regulations.

(2) The entities referred under sub - regulation (1) of this regulation shall:

- (a) put in place measures to ensure systematic health and safe working conditions;
- (b) establish goals for health, safety and environment;
- (c) have an overall view of tasks for work on health, environment and safety;
- (d) make a survey of hazards and carry out a risk assessment in each operation;
- (e) during planning and implementation of changes in the operation, assess whether the working environment will be in compliance with the requirements of these Regulations and the relevant laws.
- (f) ensure systematic prevention, management and follow-up on employees who are absent from work due to sickness; and
- (g) ensure continuous monitoring and control of the working environment and the health of the employees when necessitated by risk factors in a facility or during petroleum operations.

71.-(1) The ZPDC, contractor, operator, or any other person engaged in petroleum operations shall ensure that:

Proper work station design.

- (a) a work area and work equipment are designed and placed in a manner that ensures that employees are not subjected to adverse effect on health as a result of manual handling, work position, repetitive movements or work intensity likely to cause harm, injury or illness to the employee;
- (b) the work area provides for individual adjustable work stations and work positions; and
- (c) the work area is designed to ensure that an employee working environment is safely.

(2) The entities referred under sub regulation (1) of this regulation shall undertake regular ergonomic risk assessment wherever there is change in the process.

72.-(1) A facility shall be operated in accordance with standards approved by the Authority and with regard to the Best International Petroleum Industry Practices to:

Noise, acoustics and vibrations.

- (a) limit exposure to noise that is harmful to hearing;
- (b) limit values for hazardous noise daily exposure in the facility;
- (c) ensure that where noise limits in paragraph (b) are exceeded, a risk reducing measure is considered;
- (d) ensure that the noise level and acoustics do not prevent communication of significance to safety; and
- (e) ensure that the noise level in sleeping quarters, break rooms and recreation rooms is reduced as much as possible to contribute to rest and restitution.

(2) A facility shall be designed in a manner which ensures that vibrations do not harm employees at the facility or complicate the work of the employee.

(3) Personnel exposure to noise shall be minimized to the extent possible mainly by means of the use of adequate technology such as:

- (a) noise levels within the Facilities' areas shall comply with the possible levels that may be attained with the application of current technological standards; and
- (b) warning signs shall be posted at the entrance of divisions or zones with a noise level harmful to hearing.

Incapacity
of
employees
to work.

73.-(1) Where the capacity of an employee to work is reduced as a result of an incident, hazard, accident or any other occupational hazard, the operator shall implement the necessary measures to enable the employee to retain the work or given an alternative suitable work, where possible.

(2) The necessary measures referred to in sub regulation (1) of this regulation may include especial adaptation of the work or working hours or the alteration of work equipment.

(3) Where an employee is unable to work due to occupational hazards, shall be entitled to sick leave as prescribed under the Public Service Act and its Regulations and relevant employment laws of Zanzibar.

Living
quarter and
recreational
areas.

74.-(1) The ZPDC, contractor or operator shall provide proper living quarter to the staff working in a facilities and petroleum operations.

(2) The living quarter shall be designed and located to withstand the design loads.

(3) The living quarters and recreational areas shall be designed, equipped and located in order to provide acceptable safety, environment, and health standards.

(4) The facilities should be conceived so as to enable the separation of living quarters and recreational areas from drilling and auxiliary systems and Production Facilities.

(5) Description of the needs of personnel shall be documented and the capacity of living quarters and recreational areas should be projected so as to comply with said description.

(6) The living quarters and recreational areas referred under this regulation shall possess adequate capacities and facilities.

(7) Notwithstanding the existence of justifiable reasons, administrative areas and living quarters should be located outside the safety zone.

(8) When buildings and structures are located within the safety zone shall be designed to offer adequate protection of personnel during the situations involving risks or until such personnel may be evacuated into a safe area.

75. The ZPDC, contractor, operator or any other person engaged in petroleum operations shall ensure that the ventilation, both indoor and outdoor is designed to ensure:

Ventilation
and indoor
climate.

- (a) acceptable air quality;
- (b) free of hazardous pollution to comply with air quality standards issued by the institution responsible for Standards in consultation with Authority;
- (c) control smoke from fire and hazardous and combustible gases do not penetrate closed non-rated areas; and
- (d) the climate shall be adapted to the individual room in regard to air needs, circulation, humidity and temperature.

Mainten-
ance for the
processing
equipment.

76. The ZPDC, contractor, operator or any other person engaged in petroleum operations shall ensure that:

- (a) a scaffolding, staging, or rigging do not prevent entrance and exit to the parts of a processing unit or hamper a person from gaining access to the processing unit in case of an emergency;

Provided that, the scaffolding, staging or rigging is promptly removed when no longer required.

- (b) where wood or other combustible scaffolding, staging or rigging is erected near hot equipment, it shall be spaced or insulated from the hot equipment to prevent ignition or char by contact or radiated heat;
- (c) a permanent or temporary platform, staging or scaffold which gives access to processing equipment for maintenance purposes is not loaded in excess of its safe operating capacity;
- (d) provision is made to safely support and handle manhole covers, pipes, fittings or other materials by mechanical means, where necessary;
- (e) vessel manhole covers are installed vertically and are provided with hinges, davits or other means of support fitted with handles or other suitable means for connecting lifting devices;
- (f) a temporary or permanent platform is provided where employees are required to enter a vessel through a manhole on the side or end of the vessel and the bottom of the manhole is over three feet six inches above the ground or floor level;
- (g) the platform is located in less than three feet six inches below the bottom of the manhole through which entry is made; and

- (h) routine and periodic preventive maintenance is carried out on the process equipment in addition to the major overhaul as may be described in the manual prepared by the company.

77.-(1) The ZPDC, contractor, operator or any other person engaged in petroleum operations shall ensure that: Radiation.

- (a) a facility is designed to minimise exposure of employees to radiation; and
- (b) primary technical solutions which minimise the use of radioactive substances are applied.

(2) Where the radioactive substances are used, safe transportation, handling and storage of the radioactive substances shall be maintained.

(3) The Tanzania Atomic Energy Act and any other applicable laws and standards approved by the Authority and with regard to the Best International Petroleum Industry Practice shall apply to radiation management in facilities and petroleum operations.

78. The ZPDC, contractor, operator or any other person engaged in petroleum operations shall ensure: Outdoor work areas.

- (a) outdoor work areas have sufficient weather protection to reduce health risks to employees.
- (b) weather protection in outdoor areas be adapted to the expected periods of stay, the scope and character of the work, representative weather conditions and risk factors.

79. The ZPDC, contractor, operator or any other person engaged in petroleum operations shall ensure that: Provision of sufficient lighting for workplaces.

- (a) suitable lighting, whether natural or artificial are secured and maintained in every part of a workplace in which any person works or passes;

- (b) all glazed windows and skylights used for lighting workrooms are kept clean on both the inner and outer surfaces and free from obstruction, except in cases of whitewashing or shading of windows and skylights, for the purpose of mitigating heat or glare;
- (c) all apparatus provided for producing artificial lighting are properly maintained;
- (d) the lighting is such that the working environment and safety are safeguarded during work, travel and return from work areas; and
- (e) where possible, daylight and a view is provided in work rooms and public rooms.

Sanitary
conveniences.

80. The ZPDC, contractor, operator, or any other person engaged in petroleum operations, shall ensure that, in any facility where work is carried out there shall be:

- (a) sufficient and suitable places of conveniences for the employees are provided, maintained and kept clean;
- (b) a sanitation for male and female; and
- (c) effective provision for lighting of the places.

PART EIGHT WORKING IN CONFINED SPACE

Confined
space.

81.-(1) Before entry into a confined space is authorised, a qualified person appointed by the contractor or operator shall verify and test that:

- (a) the concentration of any chemical agent in the confined space is not hazardous to human safety or health;
- (b) the concentration of airborne hazardous substances,

other than chemical agents in the confined space is not hazardous to human safety or health; and

- (c) the percentage of oxygen in the atmosphere in the confined space is not less than 18 percent and not more than 23 percent by volume.

(2) The ZPDC, contractor, operator, or any other person engaged in petroleum operations shall ensure that:

- (a) any liquid in which a person may drown or any free-flowing solid which become entrapped shall be removed from the confined space;
- (b) the entry of any liquid, free-flowing solid or hazardous substance into the confined space shall be prevented by a secure means of disconnection or the fitting of blank flanges;
- (c) all electrical and mechanical equipment that presents a hazard to a person, exiting from or occupying the confined space is disconnected from its power source and locked out; and
- (d) the opening for entry into and exit from the confined space is sufficient in size to allow safe passage of a person used the protection equipment.

(3) The qualified person referred to in sub regulation (1) of this regulation shall in a written guide:

- (a) set out:
 - (i) the location of the confined space;
 - (ii) a record of the results of the tests made in accordance with sub-regulation (1) of this regulation; and

- (iii) an evaluation of the hazards of the confined space;
- (b) identify the procedure to be followed by a person entering into, exiting from or occupying the confined space;
- (c) identify the protection equipment referred under these Regulations to be used by every person granted access to the confined space; and
- (d) specify the protection equipment, emergency equipment and any additional equipment to be used by an employee who undertakes rescue operations in the event of an incident, hazard, accident or any other emergency.

(4) The qualified person shall establish the emergency procedures to be followed in the event of an incident, hazard, accident or other emergency in or near the confined space, including immediate evacuation of the confined space when:

- (a) an alarm is activated; or
- (b) there is any significant change in the value, level or percentage referred to in sub regulation (1) of this regulation.

(5) The entity shall provide to every person granted access to the confined space the protection equipment referred to in sub regulation (3) (d) of this regulation.

(6) The written guide referred to in sub-regulation (3) of this regulation and any procedures identified in the guide shall be explained to any employee who intent to enter into the confined space, shall acknowledge by signing a dated copy of the guide and procedures that have been read and explained.

(7) The employee referred to in sub regulation (6) shall get instruction and training and shall follow the procedure prescribed under sub regulation (3) of this regulation.

(8) Where conditions in the confined space or the nature of the work to be performed in the confined space not complied with, the following procedures shall apply:

- (a) a qualified person trained in the procedures referred to in sub regulation (1) of this regulation shall be:
 - (i) in attendance outside the confined space;
 - (ii) in communication with the person inside the confined space; and
 - (iii) provided with a suitable alarm device for summoning assistance.
- (b) an employee or person granted access to the confined space shall be trained to use the protection equipment referred to in sub regulation (3)(d) of this regulation;
- (c) an employee entering into, exiting from and occupying the confined space shall wear a safety harness that is securely attached to a life line that:
 - (i) is attached to a secure anchor outside the confined space; and
 - (ii) is controlled by the competent person referred under this regulation.
- (d) one or more persons shall be in the immediate vicinity of the confined space to assist in the event of an incident, hazard, accident or other emergency.

(9) Before a confined space is sealed, the person-in-charge of the confined space shall ascertain that no employee or any other person is inside the confined space.

Hot work operations in confined spaces.

82.-(1) Hot work shall not be performed in a confined space where an explosive or flammable hazardous substance is present, unless a qualified person engaged by the operator determines that the work can be safely performed.

(2) Where hot work is to be performed in a confined space subject to sub regulation (1) of this regulation:

- (a) a qualified person shall watch the area surrounding the confined space and maintain a fire protection watch until the likely hazard relating to fire ceases; and
- (b) an operator shall provide fire-fighting equipment in the area surrounding the confined space.

Ventilation equipment in confined spaces.

83.-(1) The ZPDC, contractor, operator, or any other person engaged in petroleum operations shall ensure that all confined areas where operations could lead to the emission and accumulation of explosive mixtures or toxic gases is equipped with suitable means of ventilation and a continuous ventilation monitoring system shall be fitted with warning device in accordance with standards approved by the Authority and with regard to the Best International Petroleum Industry Practices.

(2) Where a hazardous substance is produced by hot work in a confined space, the confined space shall be ventilated in accordance with this regulation.

(3) A person shall not be granted access to the confined space where an airborne hazardous substance or oxygen in the confined space is not maintained at the value, level or percentage prescribed under these Regulations unless:

- (a) the confined space has ventilation equipment:
 - (i) equipped with an alarm that shall be activated automatically, is audible or visible to any person in the confined space in the event that the equipment fails; and (ii) monitored by a qualified employee.
- (b) in the event of failure of the ventilation equipment, there is sufficient time for the employee to escape from the confined space before:
 - (i) exposure to, or the concentration of a hazardous substance in the confined space exceeds the value, level or percentage prescribed under these Regulations; and
 - (ii) the percentage of oxygen in the atmosphere ceases to meet the requirements of these Regulations.

(4) The employee referred to in sub-regulation (3) (a) (ii) of this regulation shall activate an alarm in the event of faulty operation of the ventilation equipment.

PART NINE SAFETY EQUIPMENT, DEVICES AND CLOTHING

84.-(1) All facility areas shall constitute restricted areas, the boundaries of which shall be clearly defined as specified under these Regulations. Restricted areas.

(2) The ZPDC, contractor, operator, or any other person engaged in petroleum operations shall ensure that all restricted areas have clearly established security measures to:

- (a) identify which facility employees are authorised to have access;

- (b) determine which persons other than the facility employees are authorised to have access;
- (c) determine the conditions under which access may take place;
- (d) define the extent of any restricted area;
- (e) define the times when access restrictions apply;
- (f) clearly mark all restricted areas and indicate that access to the area is restricted and that unauthorised presence within the area constitutes a breach of security;
- (g) control the entry, parking, loading and unloading of vehicles within the restricted areas; and
- (h) control unaccompanied baggage or personal effects.

(3) an operator shall ensure that:

- (a) only persons authorised by the person-in-charge are admitted into the restricted areas in appropriate personal protection equipment;
- (b) all persons on facilities or vessels being used in the facility shall be given sufficient information about rules applicable to stay on facilities, including training and practice on dealing with emergency situations;
- (c) all persons staying on facilities or involved in petroleum operations are advised to exercise caution with regard to anything or item that may cause fire; and
- (d) a list shall be kept at all times of every person staying on, or being on the way to or from facilities.

(4) For the significance of this matter, an operator shall consider any other conditions to maintain the integrity of the restricted areas.

85.-(1) The ZPDC, contractor, operator, or any other person engaged in petroleum operations shall ensure that adequate and secure boundary fencing provided around a restricted area and access to these areas through recognised entrance that controlled to prevent the entry of unauthorised persons and vehicles.

Erection of fences.

(2) All vehicles shall be confined to approved routes within the facility area except in special cases where specific vehicles are authorised by the person-in-charge to deviate from the approved routes.

86.-(1) The ZPDC, contractor, operator or any other person engaged in petroleum operations shall ensure that each stationary tank or vessel containing flammable, corrosive or poisonous substances is identified by a letter, number, name or a combination of these.

Equipment identification within the facility.

(2) An operator shall ensure that piping within the facility containing flammable, corrosive or poisonous liquids or gases are identified to indicate the contents and purpose when identification is practical and the correct operation of the valves of the line is essential to the safety of employees.

(3) The identification of the piping under this regulation shall be by name or colour placed on the lines or on the valves in the lines and shall be legible from the place at which the valves are operated, where practicable.

(4) The requirement under sub regulation (3) of this regulation shall not prohibit identification by the use of both name and colour.

(5) Equipment identifications in the facility shall be maintained to be legible in accordance with standards approved by the Authority and with regard to the Best Petroleum Industry Practices.

87.-(1) The ZPDC, contractor, operator or any other person engaged in petroleum operations shall ensure that any person engaged in any operation within a facility or visiting the facility and is likely to

Protection equipment

be exposed to a hazard, uses protection equipment in accordance with these Regulations, any other relevant laws and standards approved by the Authority with regard to the Best Petroleum Industry Practices.

(2) Protection equipment referred to under sub regulation of this regulation (1) shall:

- (a) designed to protect the person from the incident, hazard or accident;
- (b) not in itself create a hazard;
- (c) be maintained, inspected and tested by a qualified person; and
- (d) be maintained in a clean and sanitary condition by a qualified person.

(3) An operator shall ensure that an employee or any person exposed to or likely to be exposed or who comes into contact or likely to come into contact with moving vehicles during the work or while at a facility wears a high-visibility vest or other high-visibility clothing.

Head
protection.

88. The ZPDC, contractor, operator, or any other person engaged in petroleum operations shall ensure that a person who enters a facility or undertakes petroleum operations wears approved safety headwear when engaging in any activity or visiting a place where there is a risk of exposure to falling objects.

Eyes, ears
and face
protection.

89.-(1) The ZPDC, contractor, operator, or any other person engaged in petroleum operations shall provide eyes, ears or face protectors that meet standards approved by the Authority and with regard to the Best International Petroleum Industry Practices to employees exposed to or are likely to be exposed to risk of injury to eyes, face, ears, or front of the neck.

(2) The entities referred under sub regulation (1) of this regulation shall:

- (a) provide quick-operating automatic water showers for instant use in the vicinity of caustic vessels and pumps or other appropriate accessible places;
- (b) provide eye-wash bottles and automatic fountains in strategic and conspicuous locations in a facility; and
- (c) ensure that quick-operating automatic water showers tested daily.

90. The ZPDC, contractor, operator, or any other person engaged in petroleum operations shall:

Protective footwear and hand wear.

- (a) provide protective footwear and hand wear to an employee who exposed to or is likely to be exposed to the risk of hand or foot injury or electric shock in accordance with the standards approved by the Authority with regard to the Best International Petroleum Industry Practices; and
- (b) provide non-slip footwear to an employee or a person having access to a facility or visitor exposed to or is likely to be exposed to the risk of slipping.

91.-(1) The ZPDC, contractor, operator, or any other person engaged in petroleum operations shall provide a respiratory protective device, where an employee or person having access to a facility is exposed to or is likely to be exposed to the risk of an airborne hazardous substance or an oxygen deficient atmosphere in the work place or facility.

Respiratory protection.

(2) The respiratory protective device referred to in sub regulation (1) of this regulation shall be selected, fitted, cared for, used and maintained in accordance with standards approved by the

Authority and with regard to the Best International Petroleum Industry Practices.

(3) Where air is provided for the purpose of a respiratory protective device referred to in sub regulation (1) of this regulation:

- (a) the air shall meet the standards set out in these Regulations and other relevant laws; and
- (b) the system that supplies air within the facility or workplace shall be constructed, tested, operated and maintained in accordance with standards approved by the Authority and with regard to the Best International Petroleum Industry Practices.

(4) Where there is a likelihood of exposure to hydrogen sulphide gas or combustible gases at a facility, the operator shall provide, at a readily accessible location:

- (a) at the drill floor, at least one self-contained positive pressure breathing device for each employee working at the hydro-treating unit or an air manifold equipped with a face mask for each such employee;
- (b) at least two portable hydrogen sulphide gas detectors; and
- (c) at least two portable combustible gas detectors.

(5) A person required to use a respiratory protective device shall not have hair that interferes with the functioning of the breathing device.

Skin
protection
and special
clothing.

92.-(1) Where there is a likely hazard of injury or disease to or through the skin in a work place, the company shall provide to an employee or any person granted access to the work place:

- (a) a shield or screen;
- (b) a cream or barrier lotion to protect the skin; or
- (c) an appropriate body covering.

(2) The ZPDC, contractor, operator, or any other person engaged in petroleum operations shall provide suitable protective clothing, equipment and appliance to every person working in or having access to the facility or undertaking petroleum operations.

(3) A person entered into a facility or undertake petroleum operations shall wear suitable protective clothing or device when engaged in any activity where the exposure of any part of the body to any substance is likely to be injurious to the skin.

(4) An employee who oils, greases or attends to moving machinery shall wear close fitting and close-fastened garments which cannot easily get caught or become entangled in the machinery.

(5) Where an item of clothing of an employee or any other person having access to a facility soaked with flammable liquids or injurious chemicals, the employee or person having access to the facility shall change the clothing immediately.

(6) An employee or any other person having access to the facility shall not have long hair, wear dangling accessories, jewellery or other similar items that are likely to be hazardous to the safety or health of the employee or the person visiting the facility or in a work place unless the long hair, dangling accessories, jewellery or other similar items are tied, covered or otherwise secured to prevent the hazard.

93.-(1) The ZPDC, contractor, operator or any other person engaged in petroleum operations shall provide a fall-protection system to any person carrying out petroleum operations from an unguarded structure that is:

Fall-
protection
systems.

- (a) more than 2.4 m above the nearest permanent safe level;
- (b) above any moving parts of machinery or any other surface or thing that could cause injury to an employee upon contact;
- (c) above an open hopper, vat or pit;
- (d) above water more than 1 m deep; or
- (e) a ladder at a height of more than 2.4 m above the nearest permanent safe level, where due to the nature of the work, that person can use only one hand to hold onto the ladder.

(3) The components of a fall-protection system shall meet standards approved by the Authority, any other applicable laws and with regard to the Best International Petroleum Industry Practices.

(4) Fall-protection system that used to arrest the fall of a person shall prevent that person from being subjected to a peak fall arrest likely to cause injury from falling freely for more than 1.2 m.

Emergency
escape
device.

94.-(1) Where practicable, an emergency escape device equipped with a braking mechanism to control the descent of persons using an emergency escape device shall be provided on an elevated part of a facility.

(2) An operator shall put in place written working instructions for the use of the emergency escape device referred to in sub regulation (1) of this regulation.

(3) The instructions referred to in sub regulation (2) of this regulation shall be kept in a conspicuous place on the facility.

(4) An emergency escape device referred to under this regulation shall be installed, inspected and maintained by a competent person.

95.-(1) The ZPDC, contractor, operator or any other person engaged in petroleum operations shall provide the following at a workplace where there is a risk of drowning: Protection against drowning.

- (a) a life jacket or personal flotation device that meets standards approved by the Authority and with regard to the Best International Petroleum Industry Practices;
- (b) a safety net or a fall-protection system;
- (c) emergency equipment;
- (d) a competent person to operate all the emergency equipment;
- (e) if appropriate, a powered rescue boat held in readiness; and
- (f) written emergency procedures containing:
 - (i) a full description of the procedures to be followed and the responsibilities of all persons granted access to the workplace; and
 - (ii) the location of every emergency equipment.

(2) Where a work place is at a wharf, dock, pier, quay or other similar structure, a ladder that extends at least two rungs below water level shall be installed on the face of the structure every 60 meters along its length.

96. Where an employee or person having access to a facility is likely to be exposed to extreme temperatures and the exposure could result into hypothermia or hyperthermia, the operator shall provide Protection from extreme temperatures.

protection equipment suitable to protect the employee or person visiting from the exposure.

Records of
protection
equipment.

97.-(1) The ZPDC, contractor, operator or any other person engaged in petroleum operations shall ensure that a record of all protection equipment provided with maintenance and the record shall be kept for as long as the equipment is in use.

(2) The record referred to in sub regulation (1) of this regulation shall contain:

- (a) a description of the protection equipment and the date of its acquisition by the company;
- (b) date and result of each inspection and test of the protection equipment;
- (c) the date and nature of any maintenance work performed on the protection equipment since its acquisition;
- (d) the name of the qualified person who performed the inspection, test, maintenance, or repair of the protection equipment; and
- (e) any other relevant information.

Instructions
and training.

98. The ZPDC, contractor, operator, or any other person engaged in petroleum operations shall instruct every person at the work place who uses protection equipment in the use, operation and maintenance of the equipment.

Defective
protection
equipment.

99.-(1) Where an employee finds a defect in protection equipment that may render it unsafe for use, shall report the defect to the person-in-charge as soon as possible.

(2) The person-in-charge shall mark or tag as unsafe and remove from service any protection equipment that has a defect that may render it unsafe for use.

(3) An operator shall replace the defective equipment immediately.

**PART TEN
GENERAL REQUIREMENTS FOR FIRE AND EXPLOSION
PROTECTION IN PETROLEUM OPERATIONS**

100. Fire protection and prevention practices during the conduct of petroleum operations shall be governed by Occupational Safety and Health Act, these Regulations, any other applicable laws. Guidelines and standards approved by the Authority and with regard to the Best International Petroleum Industry Practices. Fire protection.

101.-(1) The facility shall be equipped with fire-fighting equipment to efficiently combat near-fires and prevent escalation. Fire-fighting equipment and systems.

(2) Installation of fixed fire-fighting shall be based on the risk assessment undertaken by the operator.

(3) The ZPDC, contractor, operator, or any other person engaged in petroleum operations shall provide fire fighter equipment to enable safe and effective fire-fighting to be carried out and the equipment installed and stored in a cautious and suitable manner for immediate use.

(4) The entities referred under sub regulation (3) of this regulation shall ensure that every employee at a facility area receives instruction in the use of the firefighting equipment.

102.-(1) The ZPDC, contractor, operator, or any other person engaged in petroleum operations shall ensure that a facility has adequate equipment for manual fire-fighting capable of effectively minimising the consequences of a fire. Manual fire-fighting equipment.

(2) The manual fire-fighting equipment shall be used in a simple and safe manner.

(3) An operator shall ensure that it is possible to reach any fire or near fire on the facility or installation with at least two water jets from well separated outlets.

(4) All fire-fighting equipment shall be inspected and tested at appropriate intervals by an authorised officer or any other qualified person appointed by the Authority for that purpose.

(5) The authorised officer or any other qualified person referred to under sub regulation (4) of this regulation shall indicate on the equipment the last date of inspection and shall enter and sign the results of the inspection in a log book specially kept for that purpose.

Fixed fire-
fighting
system.

103. The ZPDC, contractor, operator, or any other person engaged in petroleum operations shall ensure that:

- (a) the type, capacity and location of fire-fighting equipment is determined with reference to the dimensioning fire to ensure that fire-fighting can be carried out in a safe and effective manner;
- (b) fire-fighting equipment shall be manufactured and marked according to standards approved by the Authority and with regard to the Best International Petroleum Industry Practices;
- (c) it is possible to carry out functional testing of fire-fighting equipment during normal operational conditions;
- (d) fixed fire-fighting system is installed in explosion-hazard areas and in areas with a major risk of fire;
- (e) the system shall be capable of automatic activation by a signal from the fire detection system and in the event of gas detection, the system automatically activated where this can result in lower explosion pressure;

- (f) in areas where gas used as an extinguishing medium, notification systems that announce the release of gas shall be installed; and
- (g) manual activation of the fire-fighting systems shall activate the general alarm of the facility.

104.-(1) The ZPDC, contractor, operator, or any other person engaged in petroleum operations shall ensure that fire pump systems are designed with regard to capacity, efficiency, reliability, location and protection to enable effective fire-fighting of dimensioning fires in accordance with standards approved by the Authority and with regard to the Best International Petroleum Industry Practices.

Fire pump systems.

(2) An operator shall ensure that:

- (a) fire pumps are able to start automatically when there is a pressure drop in the fire main, and when a signal given from the fire and gas detection system;
- (b) fire pumps can start manually from the control centre and at the prime mover; and
- (c) the control room shall at all times informed of the status of the fire pump systems.

105.-(1) The ZPDC, contractor, operator or any other person engaged in petroleum operations shall ensure that every facility has water supply to combat fires.

Water supply system.

(2) A permanently manned facility shall have water supply from fire pumps or other independent supply to always ensure sufficient capacity, regardless of whether parts of the supply are out of service.

(3) The water system shall be designed to circumvent a pressure stroke and the system or parts of it inoperative.

(4) Where water supplied from fire pumps, the pumps shall start automatically in the event of a pressure drop in the fire main and upon confirmed fire detection.

(5) The fire pumps referred to under sub regulation (4) of this regulation shall be capable of being manually activated from the control room and at the propulsion unit.

(6) The propulsion units for fire pumps shall be equipped with two independent starting arrangements and the employees in charge shall ensure minimal automatic disconnection functions.

(7) Water piping shall be designed and placed to ensure a sufficient supply of water on the facility.

Fire division
require-
ments.

106.-(1) The ZPDC, contractor, operator or any other person engaged in petroleum operations shall ensure that fire divisions can remain intact about the thermal loads to be subjected in the event of a dimensioning fire.

(2) Penetrations for ventilation ducts, piping, cables, beams, windows and doors in fire divisions, shall not reduce the strength of the fire divisions.

(3) Doors in fire divisions shall be of an automatic closing type.

Passive fire
protection.

107.-(1) Where a passive fire protection unit used during petroleum operations, the unit shall be designed to provide relevant structures and equipment with sufficient fire resistance in regard to load capacity, integrity and isolation properties during a design fire load.

(2) The ZPDC, contractor, operator, or any other person engaged in petroleum operations shall ensure that:

- (a) spaces with key functions and equipment and a high fire risk, are separated from the surroundings by means of fire divisions; and
- (b) living quarters and other main areas are designed and protected to ensure that the functions are designed for can be maintained during a dimensioning fire.

(3) The entities referred under sub regulation (2) of this regulation shall ensure that the choice of materials and interior design of living quarters and other main living areas are decided in relation to the fire risk and able to prevent fire from spreading.

(4) For purposes of this regulation, "main areas" means areas or building blocks in which major petroleum operations common in nature are carried out.

108.-(1) The ZPDC, contractor, operator, or any other person engaged in petroleum operations shall: Fire and safety.

- (a) ensure observance of fire and safety precautions within the restricted area;
- (b) provide adequate means designed to extinguish fire and effectively control the spread of fire and explosions; and
- (c) provide a central fire station with suitable equipment and maintained by trained employees in putting out fire or explosion.

(2) When a fire or explosion occurs during petroleum operations, the person-in-charge of the fire station shall be informed immediately by the operator and steps shall be taken to extinguish the fire and control further explosions.

(3) The instructions to employees in case of fire shall be in writing and prominently displayed in a conspicuous place in the facility.

(4) An operator shall place a warning notice prohibiting entry by an unauthorised person, smoking, use of naked lights and other likely hazard on the facility or during petroleum operations.

(5) The warning notice referred to under sub regulation (4) of this regulation shall be conspicuously displayed in the restricted

areas and all areas within the facility or where a petroleum operations undertaken.

(6) The person-in-charge shall ensure that a person does not smoke or ignite a fire or flame in a facility area or during a petroleum operations except in a place set aside for the purpose.

(7) A person shall not possess or light a match, mechanical lighter, lamp, light, ignitable matter or similar device in facility area or during a petroleum operations except with the permission of the person-in-charge.

Fire and
explosions.

109.-(1) The ZPDC, contractor, operator or any other person engaged in petroleum operations shall put in place measures to control fire and explosion hazards generated by process operations including accidental release of syngas containing carbon monoxide, hydrogen, oxygen, methanol or other gases.

(2) The measures referred under sub regulation (1) of this regulation shall include:

- (a) the design, construction and operation of a facility for the prevention and control of fire and explosion hazards according to the standard approved by the Authority and with regard to the Best International Petroleum Industry Practices;
- (b) provision for segregation of process, storage, utility and safe areas;
- (c) provision of safety distances derived from specific safety analyses for the facility according to the standard approved by the Authority with regard to the Best International Petroleum Industry Practices for fire safety;
- (d) provision of early release detection including pressure monitoring of gas, liquid conveyance systems, smoke and heat detection for fires;

- (e) evaluation of potential vapour accumulation in storage tanks and implementation of prevention and control techniques;
- (f) avoidance of potential sources of ignition by configuring the layout of piping to avoid spills over high temperature piping, equipment or rotating machines;
- (g) provision of passive fire protection measures within the modelled fire zone, capable of withstanding the fire temperature for a time sufficient to allow the company to implement an appropriate fire mitigation strategy; and
- (h) limitation of the areas potentially likely to be affected by accidental releases by:
 - (i) defining fire zones equipped with a drainage system to collect and convey accidental releases of flammable liquids to a safe containment area;
 - (ii) including secondary containment of storage tanks, where applicable;
 - (iii) installing fire and blast partition walls in areas where appropriate separation distances cannot be achieved;
 - (iv) designing the oily sewage system to avoid propagation of fire; and
 - (v) any other measures an operator deems relevant.

110.-(1) The ZPDC, contractor, operator, or any other person engaged in petroleum operations ensure that the ventilation system of a facility designed to effectively control smoke from a dimensioning fire and to ensure that both evacuation and fire-fighting can take place in a cautious and effective manner.

Active
smoke
control.

(2) The living quarters and any other main areas shall be designed and protected to prevent penetration of smoke from a fire.

Fire and
evacuation
alarm.

111.-(1) A living quarter shall be equipped with a system capable of giving warning to every person on the installation of fire and evacuation.

(2) The system referred to in sub regulation (1) of this regulation shall have a high reliability and be capable of:

- (a) manual activation of fire alarm from the control room and if applicable, from other relevant positions; and
- (b) activating an alarm to perform from the control room.

Fire hazard
debris.

112. The ZPDC, contractor, operator, or any other person engaged in petroleum operations shall ensure that rubbish, debris or oil refuse that might constitute a fire hazard removed in proper receptacles from the facility and safely disposed of in accordance the standard approved by the Authority and with regard to the Best International Petroleum Industry Practices.

Storage and
handling of
inflam-
mable
commo-
dities.

113. All inflammable commodities shall be stored and handled in an efficient manner to minimise the risk of fire or explosion.

Fire and gas
detection
system.

114.-(1) A facility shall have a fire and gas detection system that ensures quick and reliable detection of near-fires, fires and gas leaks.

(2) The system referred to under sub regulation (1) of this regulation shall ensure a rapid and reliable detection of a fire and leak or discharge of gas, trigger the corresponding alarm and indicating the location of the accident, whether it pertains to a real or potential fire, a gas leak or discharge.

(3) The system referred under this regulation shall enable parallel and automatically to triggering the alarm, measures to prevent or to limit the consequences of fire and gas leak or discharge.

(4) An operator shall ensure that in the event of fire or gas detection, automatic actions are in place to limit the consequences of the fire or gas leak.

115.-(1) A facility shall, at the minimum, have one escape exit on each of the floors of a building. Escape exits.

(2) The escape exits referred to under sub regulation (1) of this regulation shall:

- (a) be free at all times;
- (b) have open doorways or swinging doors to provide the maximum possibility of escape;
- (c) have an unobstructed passage to the fire assembly point; and
- (d) be clearly marked.

(3) The escape exit doors shall:

- (a) be readily opened from the inside without a key and shall swing outward if located in an exterior wall;
- (b) not be locked to provide ready exit while the room is occupied;
- (c) be by fixed ladder, stairway, ramp, walkway, slide, slide pole or any other means consistent with standards approved by the Authority and with regard to the Best International Petroleum Industry Practices; and
- (d) be located closely to each other to provide reasonably safe alternative means of escape.

(4) A fence which is close to a light oil or gas processing unit shall have gates opening outward.

(5) The gates of a facility shall be unlocked whenever the area within the enclosure occupied.

(6) An operator shall use any other means to ensure the safety of the employees and the facility or petroleum operations.

Reporting
of fire and
explosion.

116. Where fire or explosion occurs during petroleum operations, the ZPDC, contractor, operator, or any other person engaged in petroleum operations shall submit a written report to the Authority immediately but in any case, not later than twenty-four hours of the occurrence of the explosion.

PART ELEVEN EMERGENCY PREPAREDNESS

Require-
ments
relating to
emergency
prepare-
dness.

117.-(1) The ZPDC, contractor, operator, or any other person engaged in petroleum operations shall ensure that the formulation, implementation and maintenance of emergency preparedness is carried out in a controlled and organised manner.

(2) The emergency preparedness shall be integrated in all phases of petroleum operations in accordance with these Regulations, Occupations Health and Safety Act and other applicable laws.

(3) The entities referred under sub regulation (1) of this regulation shall provide instructions to be followed during an emergency and shall advise every employee toward the respective functions.

Emergency
Prepared-
ness
Strategy.

118.-(1) The ZPDC, contractor, operator, or any other person engaged in petroleum operations shall, in addition to the requirements under the Act and these Regulations prepare an emergency preparedness Strategy against incidents, hazards and accidents.

(2) The emergency preparedness strategy prepared in accordance with sub regulation (1) of this regulation shall be based on results from risk and emergency preparedness analyses carried out by the operator.

(3) The entities referred under sub regulation (1) of this regulation shall ensure that the emergency preparedness strategy is coordinated with the security institutions, health service providers and emergency service providers, to ensure that the chain of rescue for the ill or injured employees are coherent and professional.

(4) An operator shall, in the formulation of emergency preparedness strategy, give priority to measures which prevent a hazard from developing into an incident or accident over measures which reduce the consequences of an incident or accident.

119.-(1) The ZPDC, contractor, operator, or any other person engaged in petroleum operations shall prepare and maintain an Emergency Plan for a facility or petroleum operations which shall provide for the following:

Duty to
prepare,
maintain and
implement
Emergency
Plan.

- (a) emergency procedures;
- (b) an effective response to an emergency including:
 - (i) evacuation procedures;
 - (ii) procedures for notifying emergency service organisations at the earliest opportunity;
 - (iii) medical treatment and assistance; and
 - (iv) procedures for effective communication between the person authorised by the operator to coordinate the emergency response and all persons at the workplace.
- (c) testing of the emergency procedures, including the frequency of testing; and
- (d) information, training and instruction to employees in relation to implementing the emergency procedures.

(2) For the purposes of sub regulation (1) of this regulation, an operator shall consider all relevant matters, including:

- (a) the nature of operations being carried out at a facility;
- (b) the nature of the hazards at the facility or workplace;
- (c) the size and location of the facility or workplace; and
- (d) the number and composition of the employees and other persons at a facility.

(3) An operator shall implement the Emergency Plan for the facility in the event of an emergency.

Emergency
Response
Plan.

120.-(1) The ZPDC, contractor, operator, or any other person engaged in petroleum operations shall submit to the Authority an Emergency Response Plan for handling hazardous and accidents situations which may occur during Petroleum operations and shall, among other items, contain the following information:

- (a) an organisational chart with a precise description of responsibilities, channels of reporting information, and duties of each individual in the event of accidents and dangerous situations;
- (b) a list of the equipment intended for use in each accident or in each danger situation with a precise description of the nature and type of equipment, its capacity, location, means of transport, usage and corresponding area of use;
- (c) programme of action with a precise description of the alarm and communication systems, including means of communication with authorities, the duties of private parties, when and on which terms emergency equipment used, of how the operations shall be performed, of the measures for limiting the extent of the damage in case of hazard or accident, and the procedures for winding up the operation.

- (d) addresses all health and safety consequences of a major incident or accident occurred; and
- (e) includes all matters to be included in emergency response plan specified under Form No. 3 of the First Schedule of these Regulations.

(2) The plan shall be updated, compatible with national response contingency plan and submitted to the Authority and to other relevant authorities and institutions.

(3) The Authority must be notified prior to the carrying out of emergency exercises and must receive a report on such emergency exercise.

121.-(1) The ZPDC, contractor, operator, or any other person engaged in petroleum operations shall provide the following information to the local community and the local authority where the facility located or where a petroleum operations undertaken:

Information
for local
community.

- (a) the name and location of the facility or petroleum operation;
- (b) the name, position and contact details of a contact person from whom information may be obtained;
- (c) a general description of the major hazards posed by the operation of a facility;
- (d) the means by which the local community will be informed of a major incident or accident occurred; and
- (e) the actions, as specified in the emergency plan, that members of the local community should take if a major incident or accident occurs.

(2) an operator shall ensure that the information provided under sub regulation (1) of this regulation is:

- (a) set out and expressed in a way that is readily accessible and understandable to persons who are not familiar with the facility and its operations;
- (b) reviewed and as necessary revised if a modification made to the facility; and
- (c) the actions, as specified in the emergency plan, that members of the local community should take if a major incident or accident occurs.

Review
and
testing of
emergency
plans.

122.-(1) The ZPDC, contractor, operator, or any other person who has prepared an emergency plan in accordance with these Regulations shall:

- (a) review and where necessary revise the emergency plan after every five years; and
- (b) test the plan and take reasonable arrangement for the Authority to participate in the testing of the plan regularly.

(2) The entities referred under sub regulation (1) of this regulation shall, when reviewing the plan, take into account changes that have occurred in the facility to which the plan relates to a new technical knowledge on the response to major incidents, hazards and accidents.

Communi-
cation
during
emergency
situations.

123. The ZPDC, contractor, operator, or any other person engaged in petroleum operations shall ensure that the means of communication during an emergency is unambiguous and effectively transmit information by means of light, sound, writing, signs and symbols as stipulated in an emergency plan.

124.-(1) The ZPDC, contractor, operator, or any other person engaged in petroleum operations shall ensure that relevant information to the formulation, implementation and maintenance of emergency preparedness of a facility or petroleum operations in question are collected, organised, analysed and used.

System for transference of information.

(2) The emergency preparedness measures implemented when an incident, hazard or accident occurs shall be documented to assist in the investigation of the incident or accident.

125.-(1) The ZPDC, contractor, operator, or any other person engaged in petroleum operations shall monitor the implementation of emergency plan to ensure that all requirements relating to emergency preparedness have been complied with.

Monitoring of emergency preparedness.

(2) The monitoring of the emergency preparedness or facility concerned shall be carried out systematically and integrated in the total activity programme of the facility or petroleum operations and any deviation shall be identified and rectified immediately but in any case, not later than seven days from the date when the deviation identified.

126.-(1) The ZPDC, contractor, operator, or any other person engaged in petroleum operations shall carry out emergency alert to ensure effective mobilisation of relevant emergency preparedness resources.

Emergency alerts and notification.

(2) The entities referred under sub regulation (1) of this regulation shall alert the Authority and any other relevant Government Institution or agency immediately, according to the detailed instructions issued by the Authority or prescribed in any other applicable laws in Zanzibar.

127.-(1) The ZPDC, contractor, operator, or any other person engaged in petroleum operations shall put in place rescue measures which ensure that:

Rescue measures.

- (a) missing persons can be found; and
- (b) injured persons are given necessary first aid and are brought to a safe area for treatment.

(2) Measures to rescue persons referred to under sub regulation (1) of this regulation shall be established and based on injury considerations, including hypothermia.

Evacuation. 128.-(1) The ZPDC, contractor, operator, or any other person engaged in petroleum operations shall put in place evacuation measures that shall be adhered to during an emergency.

(2) The evacuation measures referred to under sub regulation (1) shall be carried out in a safe and organised manner to ensure that all employees are brought to a safe area.

Normalisation measures. 129.-(1) The ZPDC, contractor, operator, or any other person engaged in petroleum operations shall put in place normalisation measures to ensure that:

- (a) employees are taken for investigation, treatment and care;
- (b) the environment restored as near as possible to its original condition; and
- (c) damage to the facility stabilised.

(2) The Authority shall be notified before the normalisation process concluded by the operator.

Emergency preparedness cooperation. 130.-(1) The ZPDC, contractor, operator, or any other person engaged in petroleum operations shall cooperate with other relevant entities involved in petroleum operations to ensure necessary emergency preparedness in the areas of health, safety and the environment.

(2) Where special circumstances warrant, the Authority may issue and stipulate conditions for the cooperation referred to under sub regulation (1) of this regulation.

(3) An operator with neighbouring activities and facilities within a geographic area that handle hazardous substances, shall actively contribute to the exchange of information to ensure that the people affected by the petroleum operations and facilities have a full overview at all times of the amounts of hazardous substances being handled.

(4) An operator shall actively contribute to coordination measures, including emergency preparedness guaranteed and implemented in accordance with the emergency plan.

(5) In the event of an incident, hazard or accident, the Authority may:

- (a) order that other institutions involved in petroleum operations make the necessary emergency preparedness resources available at the expense of the operator of the affected facility or petroleum operations; and
- (b) at the expense of the operator of the affected facility or petroleum operations implement measures to acquire the necessary additional resources in any other manner that the Authority deems necessary.

PART TWELVE SAFETY REQUIREMENTS FOR PLANTS AND EQUIPMENTS

131. The ZPDC, contractor, operator, or any other person engaged in petroleum operations shall ensure that: Machinery.

- (a) machinery and equipment are operated by a qualified person;

- (b) before start of any machinery or equipment, all guards are in place and that a person shall not be endangered by the machinery being put in motion;
- (c) every bolt, rope or chain used for the transmission of power not operated from catheads, all gear, sprockets, clutches, cranks, connecting rods and all exposed and moving parts of machinery are enclosed, screened or railed off to prevent any employee or any other person from coming into contact;
- (d) pinch points of machines and the cutting edge of power driven tools guarded to prevent accidental contact by any person or employee, where practicable;
- (e) every abrasive wheel is guarded in such a way as to restrain flying parts and to limit the dispersal of dust and particles produced by grinding;
- (f) where power-driven machinery used, each machine has a stopping device located within easy reach of the employee operating the machinery;
- (g) every machine which is not individually motor driven shall be equipped with a clutch or other adequate means of stopping the machine;
- (h) starting devices shall be arranged to prevent an incident, hazard, or accident;
- (i) boilers and unfired pressure vessels used in connection with petroleum operations are designed, constructed, tested, installed, inspected, and maintained in accordance with standards approved by the Authority, any other applicable laws and with regard to the Best International Petroleum Industry Practices; and
- (j) every part of machinery whether situated in an engine house or not shall be protected in accordance with these

Regulations and with regard to the Best International
Petroleum Industry Practices.

132.-(1) Where there is a likelihood of danger from contact with moving parts of machinery, an employee or qualified person shall not clean, service or otherwise maintain machinery when in motion.

Maintenance
and repair of
machinery.

(2) Machinery or any piece of machinery shall be shut down before repair, and shall be disconnected from power and control device shall be locked or made inoperative.

(3) Machinery shutdown under sub regulation (2) of this regulation shall be restarted with the instructions from the employee or qualified.

(4) An employee or qualified person affecting the repair on the machinery shall notify the person-in-charge when the repair has been completed.

133. An employee or qualified person shall not be allowed to work with a machinery or in a process, unless has been fully instructed as to the danger likely to arise from the work and:

Training for
employees
in use of
machinery.

- (a) has observed the necessary precautions;
- (b) has received sufficient on-the-job training on the machinery or process; or
- (c) is under supervision of a person who has excellent knowledge and experience of the machinery or process and who is responsible for the safety of the trainee.

134. The ZPDC, contractor, operator, or any other person engaged in petroleum operations shall ensure that:

Human-
machine
interface and
information
presentation.

- (a) monitor-based equipment and other technical equipment for monitoring, controlling and running machines, installations or production processes are able to reduce safety risk;

- (b) information transmitters and operating devices are designed, placed and grouped in a simple understandable language and visual aid to allow simple and quick receipt of the information and implementation of necessary actions;
- (c) the information systems shall be designed for both normal and emergency situations;
- (d) in the event of an incident, hazard, accident, non-conformity or fault in system of significance to safety, an alarm shall be activated different from other alarm notifications.

Operation
of mobile
equipment.

135.-(1) The ZPDC, contractor, operator, or any other person engaged in petroleum operations shall ensure that:

- (a) all powered mobile equipment is maintained in good running order, and operated in a manner that prevents undue danger to human life or damage to the environment;
- (b) where mobile equipment operated during hours of darkness, adequate light shall be provided and used;
- (c) where mobile equipment used in locations or under conditions where there is a danger of falling objects, an overhead guard with shelter shall be provided to protect the driver from over-head hazards and extreme weather;
- (d) a cab or similar means of enclosure on mobile equipment have adequate means of ventilation;
- (e) a guard shall be installed to protect a driver of equipment where mobile equipment uses hosting or hauling ropes; and

- (f) only a qualified driver shall be permitted to operate the mobile equipment.

(2) An employee designated by the operator to drive the mobile equipment shall operate the equipment in a safe manner and not proceed with the work where the vision obstructed or without a signal from a designated signal-man.

136. A welding plant shall not be used in a facility without approval from the Authority.

Use of welding plants.

137. An internal combustion engine installed on a facility shall be spark proof and exhaust pipes shall be insulated, cooled, or constructed to preclude the ignition of flammable vapours.

Internal combustion engine exhaust.

138.-(1) The ZPDC, contractor, operator, or any other person engaged in petroleum operations shall ensure that:

Safety conditions relating to plants, tools, and equipment.

- (a) plants, tools, or other equipment are safely constructed or placed;
- (b) all hand tools are kept in a good state of repair;
- (c) scaffolding, stage, walkway, working platform, stairway and ladder, whether temporary or permanent are constructed and maintained in safe condition; and
- (d) buildings, structures, machinery and equipment are of sufficient size and strength to withstand imposed stresses and to safely perform the functions.

(2) An authorised officer shall at any time inspect the facility, building, structure, machinery and equipment.

(3) The entities referred under sub regulation (1) of this regulation shall correct, repair, replace or otherwise make safe defective equipment or unsafe conditions identified during inspection.

Arrange-
ments for
incidents
and
emergencies
for pipeline
systems.

139.-(1) The ZPDC, contractor, operator, or any other person engaged in petroleum operations shall ensure that fluids are not conveyed in a pipeline system unless adequate arrangements have been made for dealing with:

- (a) accidental loss of fluid from the pipeline;
- (b) discovery of a defect in or damage to the pipeline or other emergency affecting the pipeline; or
- (c) failure of the pipeline or crude oil heating system.

(2) The adequate arrangements referred under sub regulation (1) of this regulation shall put in place to deal with incidents, hazards, accidents or emergency relating to the pipeline system.

Control
and
evaluation
condition.

140. The ZPDC, contractor, operator, or any other person engaged in petroleum operations shall ensure that:

- (a) after the installation and commencement of operation of a pipeline system, carry out an annual inspection of its condition, except where defects are discovered that call for shorter intervals of inspection;
- (b) condition control shall be based on the most suitable methods available and the choice of method shall be based on the type of pipeline system and its location;
- (c) internal inspection with the view of detecting any possible corrosion and mechanical failure for pipeline systems where possible damage may entail consequences to safety or lead to significant economic loss shall be considered and carried out regularly; and
- (d) the results of the inspection of condition, carry out an annual evaluation of the condition of the pipeline system and prepare a condition report for each individual pipeline system.

141. The ZPDC, contractor, operator, or any other person engaged in petroleum operations shall ensure that:

Safety systems.

- (a) fluid shall be not conveyed in a pipeline unless it provided with necessary safety systems to protect people from risk to health and safety;
- (b) the pipeline system shall have suitable safety systems to protect people from risk including:
 - (i) emergency shut-down valves and shut-off valves which operate on demand or fail safe in the closed position to minimise loss of containment of the pipeline inventory;
 - (ii) devices to prevent the safe operating limits being exceeded, including pressure relief valves, block valves to limit the inventory released and shall be spaced according to the outcome of safety evaluations and maintenance considerations; and
 - (iii) control or monitoring equipment including flow detectors and pressure monitors, which protect the pipeline or to secure its safe operation;
- (c) where a pipeline system designed to allow passage of equipment for inspection, maintenance or testing the pipeline, the emergency shut-down valve shall be designed to allow the passage of such equipment;
- (d) an emergency shutdown valve shall be held open by an electrical, hydraulic or other signal to the mechanism for actuating the valve on the failure of which the valve shall automatically close;
- (e) an emergency shut-down valve shall be capable of being closed manually by an employee or qualified person and automatically by the operation of the

emergency shut-down system of the pipeline to which the pipeline connected; or while relevant work of examination or maintenance is being carried out, by one of those means;

- (f) an emergency shut-down valve and its actuating mechanism shall, so far as reasonably practicable, be protected from damage arising from fire, or explosion;
- (g) an emergency shut-down valve shall be maintained in good working condition; and
- (h) where an emergency shut-down valve has operated to block the flow of fluid within the pipeline, it shall not be reopened to permit the flow of fluid until steps have been taken to ensure safety when to reopen the flow of fluid.

Pipeline
warning
signs.

142.-(1) The ZPDC, contractor, operator, or any other person engaged in petroleum operations shall install pipeline warning signs:

- (a) at each side of the crossing, where a pipeline crosses a road or watercourse;
- (b) within the land acquired for the pipeline and facing the road or watercourse;
- (c) if the pipeline right of way adjoins the right of way of a road on the common boundary of the rights of way but not within the right of way of the road; and
- (d) if the pipeline is:
 - (i) located in a ditch or unpaved area, in the right of way of a road; or
 - (ii) transmitting Highest Vapour Pressure (HVP) product, the warning sign shall clearly indicate

the name of the Highest Vapour Pressure (HVP) product that may be conveyed at intervals that will clearly and continuously mark the location of the pipeline.

(2) The operator shall install warning signs as required under sub regulation (1) of this regulation in consideration that:

- (a) prior to the commencement of operation of the pipeline system;
- (b) in accordance with standards approved by the Authority, any applicable laws and with regard to the Best International Petroleum Industry Practices;

provided that the format is consistent for the entire pipeline that is the subject of the licence.

- (c) no more than 0.3 meters from a fence line, where applicable;
- (d) as close to the centre line of the pipeline as possible without risking striking the pipeline;
- (e) so that each sign is not obscured by a bush or any other thing; and
- (f) as independent, free-standing structures which shall not be attached to any other structures except fencing surrounding the facilities.

(3) The entities referred under sub regulation (1) of this regulation shall while carrying out surface restoration operations, install permanent warning signs in accordance with standards approved by the Authority and with regard to the Best International Petroleum Industry Practices as soon as surface restoration operations are completed.

(4) Maintenance for pipeline warning signs and replace any defaced, worn out, illegible, missed or destroyed pipeline warning sign, regardless of the operational status of the pipeline.

(5) Where a pipeline or part of a removed, any existing warning signs in the area from which the pipeline or part of the pipeline has been removed shall also be removed.

Group
pipeline
signs.

143.-(1) The ZPDC, contractor, operator, or any other person engaged in petroleum operations shall install group pipeline warning signs for a group of pipelines in the same right of way, instead of a separate sign for each pipeline, where:

- (a) is the same for each pipeline in the group;
- (b) each pipeline in the group conveys the same petroleum;
- (c) the warning sign identifies that there are other pipelines closed in accordance with standards approved by the Authority and with regard to the Best International Petroleum Industry Practices; and
- (d) none of the pipelines in the group convey High Vapour Pressure product or natural gas containing more than one percent hydrogen sulphide.

(2) The warning signs for a group of pipelines shall be placed on both sides of the right of way containing the group of pipelines and shall not be more than sixty metres apart.

Identifi-
cation of
pipeline
installa-
tions.

144.-(1) The ZPDC, contractor, operator, or any other person engaged in petroleum operations shall:

- (a) have a clear coding and marking of equipment including valves, meters, electrical installations, heating facilities and pipeline sections; and

- (b) install a large facility identification sign at the entrance to a gas compressor station, heating stations, oil pumping station and pressure regulating stations, showing the name of the facility, location of the facility, the name of the company, an emergency telephone number and a warning symbol in accordance with standards approved by the Authority and with regard to the Best International Petroleum Industry Practices.

(2) Warning symbols identifying the hazard at a pipeline installation referred to in sub regulation (1)(b) of this regulation shall be limited to:

- (a) category I, flammable gas or liquid; or
- (b) category II, poisonous gas or liquid.

(3) Warning symbols that do not conform to the requirements set out in these Regulations, standards approved by the Authority and with regard to the Best International Petroleum Industry Practices.

145.-(1) The ZPDC, contractor, operator, or any other person engaged in petroleum operations shall ensure that terminal and depot control room wherever provided in a pipeline system shall be manned on continuous basis during operations and in emergencies condition when arises.

Safe
operating
practices
for pipeline
systems.

(2) The entities referred under sub regulation (1) of this regulation shall:

- (a) develop site-specific operating standards providing for the procedures to be followed during operations with the involvement of the operations and safety team; and
- (b) periodically reviewed, updated and records maintained procedure whenever any changes or modifications to the facilities are made in accordance with the management of change procedure.

(3) The critical operating steps based on standard operating procedures shall, where applicable, be displayed in a conspicuous place near the location of the safety system.

(4) Fundamentally safe and very high frequency handsets shall be provided to all operating employees working in critical areas of the pipeline system.

(5) Check list shall be prepared for verifying safety system and equipment and the check records in safe custody.

(6) Suitable interlocks shall be provided for tripping, alarm or remote operated shut off valve operation based on the events including low level, high level, high pressure, and low pressure.

Prohibition
of smoking
and use of
naked light
on Tank
Vehicles.

146.-(1) The ZPDC, contractor, operator, or any other person engaged in petroleum operations shall ensure that:

- (a) smoking and the use of naked lights shall not be permitted within nineteen meters of a tank vehicle;
- (b) the tank vehicle shall not be halted within thirty-seven meters of a fire or open flame;
- (c) matches, mechanical cigarette lighters or other means of making fire shall not be carried either on the tank vehicle or by any person on the vehicle;
- (d) a fire extinguisher of the type consistent with standards approved by the Authority and with regard to the Best International Petroleum Industry Practices shall be carried in an easily accessible position on every vehicle transmitting bulk petroleum, checked and fitted with a quick-release device; and
- (e) repairs involving the use of naked lights shall not be carried out unless the tank is emptied.

(2) Where the entity or person referred under sub regulation (1) of this regulation contravene with any requirement under this regulation, shall be liable to pay a fine to the Authority of Tanzania shillings equivalent to not less than Ten Thousands United State dollars in the first instance and a further penalty of two percent of the penalty for each day that the contravention of the regulation continues.

147.-(1) Tank vehicle shall always be kept securely closed except during the filling or discharging into the tank, filling pipe, manhole and dipping.

Closing of
Tank vehicle.

(2) The fuel tank of a mechanically propelled vehicle shall not be filled or replenished with Class A petroleum direct from vehicle carrying Class A petroleum in bulk.

148.-(1) A tank vehicle carrying bulk petroleum shall not be parked on the main road.

Prohibition
of parking
on the main
road.

(2) Where a mechanical breakdown or other cause prevents a vehicle from leaving a main road, the driver shall remain with the vehicle and take all reasonable precautions to prevent a fire or other accident, and in particular shall ensure that:

- (a) two collapsible metal notice boards each bearing the word "DANGER" in red reflector glass are placed in the centre of the road, forty-six meters ahead of, and forty-six metres behind, the parked tank vehicle;
- (b) one red lamp is placed beside each of the boards referred to in paragraph (a) during the hours of darkness; and
- (c) the fire extinguishers on the vehicle are removed, if necessary, and placed if the vehicle catches fire.

(3) The mechanical breakdown referred to under sub regulation (2) of this regulation shall be reported to the person in charge as soon as practicable but in any case, not later than six hours from the time of the breakdown.

Loading
and
unloading
of tank
vehicle.

149.-(1) When loading or unloading a tank vehicle an operator shall ensure:

- (a) adequate earthing connection from the vehicle shall be made by bonded hose or other means before commencing the operations;
- (b) the earthing connection shall not be disconnected until the loading or unloading operation ceases; and
- (c) the engine of the vehicle shall be stopped before making the earth connections and shall not be restarted until the earth connections are disconnected.

(2) This regulation does not apply where the vehicle provided with self-pumping equipment driven by a power take-off or a separate power unit consistent with standards approved by the Authority and with regard to the Best International Petroleum Industry Practices.

Prohibition
of loading
and
unloading
outside
licensed
storage
facility.

150.-(1) Unloading of petroleum from any tank vehicle shall not take place other than into licensed storage facility.

(2) For the purpose of distinguishing storage tanks on the same premises, every tank shall be marked with a particular number, and the type and grade of petroleum contained in the tank shall be marked on it, in a manner that the markings cannot be readily altered or destroyed.

(3) Every dipstick, not being one permanently fixed to a storage tank and any other device used for ascertaining the quantity of the petroleum for the time being contained in a storage tank, shall in the same manner be marked with the same number, the type and grade of petroleum as that of the storage tank in connection with which it is used.

(4) Where the method of filling a storage tank, by means of a pipe leading from the tank vehicle to a filling point not situated on or immediately adjacent to the tank vehicle, the pipe shall be clearly marked on or near the filling point, with the same number, type and grade of petroleum commodities or petroleum products as that of the tank.

(5) The person-in-charge of a storage tank shall ensure that no petroleum overflows from the storage tank or escapes at the filling point and from the tank, and shall not permit delivery into the tank to begin unless:

(a) the storage tank has immediately been tested before with a dipstick or other suitable device and the test has shown that the quantity of petroleum proposed to be delivered can safely be received by that tank;

(b) where the method of filling the tank is that referred to in sub-regulation (5) of this regulation, until the person-in-charge of the storage tank has taken all reasonable steps to ensure that:

(i) the connecting hose through which the petroleum shall be delivered is properly and securely connected to the filling point of the storage tank;

(ii) all pipes through which the petroleum shall pass between the filling point and the storage tank are properly connected to each other or as the case may be, to the tank and otherwise in good order; and

(iii) in any other case until all reasonable steps taken to ensure that the connecting hose is properly and securely connected to the filling point of the storage tank.

(c) where there is a dipping opening in the storage tank, until the dipping opening has been securely closed, except in a case where the dip and fill pipe are combined.

(6) Proper records shall be kept of all deliveries into each storage tank.

(7) The person-in-charge of the delivery shall keep a constant watch of the delivery during the time of delivery into the storage tank.

(8) The person attending to the vehicle, during the time of delivery from a tank vehicle, shall keep constant watch on the tank of the vehicle from which petroleum are being delivered.

Condition
for keeping
tank
vehicle.

151. The ZPDC, contractor, operator, or any other person engaged in petroleum operations shall ensure that:

- (a) the premises in which a tank vehicle is usually kept shall be maintained in a clean condition, free from grass, weeds and all flammable material of any description;
- (b) fire extinguishers are kept on the premises and maintained at all times in readiness for immediate use;
- (c) notices prohibiting smoking, the lighting of matches and the carrying of unprotected lights shall be fixed in a prominent position about the premises;
- (d) the premises where the tank vehicle kept are secured in such a manner as to prevent the unlawful entry of any person; and
- (e) the vehicle, when parked on the premises is protected against interference by an unauthorised person.

PART THIRTEEN HEALTH CARE FACILITIES AND FIRST AID SERVICES

Special
require-
ments for
health
care and
services.

152.-(1) The ZPDC, contractor, operator, or any other person engaged in petroleum operations shall ensure that:

- (a) a facility has health care facilities which adapted to the risk factors of the facility;
- (b) employees receive necessary treatment and care in the event of an incident or accident;

- (c) the preparedness relating to health care facilities and health services shall be integrated in the overall emergency preparedness of petroleum operations; and
- (d) a medical practitioner shall be always available within the facility.

(2) Subject to the consent of the employee, the medical practitioner referred to under sub regulation (1)(d) of this regulation shall notify the person in - charge of any occupational disease or injury and immediately not later than twenty-four hours provide the necessary health care to the injured employee.

(3) The entities referred under sub regulation (1) of this regulation shall coordinate the preparedness of the operations relating to health care and health services with the Ministry responsible for health and comply with Occupational Safety and Health Act and any other applicable laws.

(4) Where the entities referred under sub regulation (1) of this regulation fails to comply with this regulation shall be liable to pay a fine of Tanzania shillings equivalent to not less than Fifteen Thousands United State dollars to the Authority.

153.-(1) The ZPDC, contractor, operator, or any other person engaged in petroleum operations shall ensure that an employees are:

Medical
examinations
for
employees.

- (a) offered regular medical examinations by a medical professional with training and experience in occupational health and at no cost to the employee to establish any effects or sickness arising from occupational hazards; and
- (b) undertake medical examination before and after assigned any work that is likely to have health risks, to implement the preventive measures.

(2) An employee who has undergone medical examination under sub regulation (1) of this regulation shall have access to the results of the examination.

(3) An employee who has been subjected to hazardous exposure while carrying out the assigned work, shall be offered special health examinations at the cost of the employer to implement the necessary corrective measures.

Assessment
and revision
on health
care
facilities
and first aid
services.

154. The ZPDC, contractor, operator, or any other person engaged in petroleum operations shall:

- (a) undertake first aid needs assessment and revise it regularly whenever change in the processes occurred;
- (b) provide adequate first aid and emergency health care facilities to deal with incidents, hazards or accidents likely to occur in a facility or during petroleum operations;
- (c) provide a first aid box or cupboard and affix a notice in every work-room including the name and contact of a person-in-charge of the first aid who shall be available during working hour; and
- (d) maintain a portable oxygen inhalation rescue apparatus in the facility or during petroleum operations.

Posting of
information.

155. The ZPDC, contractor, operator, or any other person engaged in petroleum operations shall post or keep a posted in a conspicuous place or in a work place:

- (a) information regarding first aid to be rendered for any injury, occupational disease or illness likely to be sustained or contracted;
- (b) information regarding the location of first aid attendants, first aid stations and first aid rooms; and

- (c) at every telephone, an up to date list of telephone numbers for use in case of an emergence.

156.-(1) The ZPDC, contractor, operator, or any other person engaged in petroleum operations shall maintain an ambulance station at a facility or during petroleum operations.

Ambulance stations.

(2) The ambulance station shall be equipped with the first aid kit as provided for under these Regulations and any applicable laws shall include resuscitation apparatus and other special equipment.

157. The ZPDC, contractor, operator, or any other person engaged in petroleum operations shall give continuous training to employees in the use, maintenance of rescue and use of resuscitation apparatus and first aid equipment.

Training of employee on first aid.

PART FOURTEEN HANDLING, INVESTIGATION, RECORDING AND REPORTING OF INCIDENT, HAZARD AND ACCIDENT

158. The ZPDC, contractor, operator, or any other person engaged in petroleum operations shall ensure that necessary measures are taken as soon as possible during the occurrence of an accident, hazard or incident so that:

Handling of incidents, hazard and accidents.

- (a) the right notification is given immediately, if requested or required under these Regulations or any applicable law;
- (b) hazardous situations do not develop into an incident or accident;
- (c) in the event of an incident, hazard or an accident, response measures are implemented to prevent injury or loss of life, minimise pollution, ensure that employees can be rescued and evacuated quickly and efficiently;

- (d) ensure that conditions shall be restore to its prior condition when the development of incident, hazard or accident situation has been stopped including through monitoring and clean-up of the pollution, restoring the environment to as near as possible to its state before the incident, hazard or accident; and
- (e) systematically investigate an incident, hazard or accident and may appoint representatives visit the scene of the accident as soon as the situation has been brought under control to find out its causes and report to the Authority within seven days after the completion of the investigation.

Recording
of
incidents,
hazards
and
accidents.

159.-(1) The person-in-charge shall record all injury, near miss and disease caused as a result of work or conditions at the work place.

(2) The person-in-charge shall record incidents, hazards and accidents at a work place which shall form part of the monthly incident report to the Authority.

(3) The record referred to under sub regulation (2) of this regulation shall, where it relates to an employee, be confidential and shall not contain medical information of a personal nature without the consent of the person to whom the information applies.

(4) A record made under sub regulation (1) of this regulation shall contain:

- (a) the date, time and location of the occurrence that resulted in the incident, hazard or accident;
- (b) the name of the injured or ill employee;
- (c) a brief description of the incident, hazard or accident;
- (d) the causes of the injury; and

- (e) measures taken to prevent re-occurrences.

160. Where an employee becomes aware of incident, hazard or accident arising in the course of or in connection with work that has caused injury to any person, shall without delay report the incident, hazard or accident to the person-in-charge orally or in writing.

Report by
employee.

161.-(1) Where an incident or accident occurs in a facility or during a petroleum operations and results in serious injury to any person or pollution of the environment, the person-in-charge shall send a notification of such incident or accident as prescribed under Form No. 4 of the First Schedule of these Regulations to the Authority and copied to the relevant Government institutions.

Notification.

(2) The person in-charge engaged in petroleum operations shall:

- (a) report promptly, the date, time, location and description of an incident or accident to the Authority, as soon as possible but in any case not later than twenty-four hours after becoming aware of the incident or accident, which resulted in one or more of the following circumstances:

- (i) the death of an employee or any other;
- (ii) a missing person;
- (iii) a disabling or serious injury to an employee or any other person;
- (iv) a break or leak in tanks or pipelines or auxiliary installations from which loss of petroleum has occurred;
- (v) an uncontrolled flowing well;
- (vi) the implementation of emergency rescue, revival or evacuation procedures;

- (vii) a fire or explosion that threatened the safety or health of an employee or damage to the facility;
 - (viii) the free fall of an elevating device that rendered the elevating device unsafe for use by an employee; or
 - (ix) an accumulation, spill or leak of a hazardous substance.
- (b) avail the record of the incident, hazard or accident to an authorised officer, when requested; and
 - (c) within fifteen days from the end of each month in which the incident or accident occurred, submit to the Authority a report containing a summary of any incidents or accident that have occurred during the month including a record of employees who have been injured.
- (3) Where the Authority is notified of a major accident or incident at a facility or during petroleum operations, the person in – charge shall, upon request by the Authority provide:
- (a) information regarding the cause of the incident, accident, dangerous substances involved, data available for assessing the effects of the incident, accident on people, wildlife and the environment;
 - (b) emergency measures taken and the steps envisaged to alleviate the medium and long-term effects of the incident or accident and to prevent recurrence of the incident or accident; and
 - (c) any other information which enable the Authority to evaluate the incident or accident.

(4) Notwithstanding the requirement of sub regulation (1) of this regulation, person in – charge shall, until the circumstances of the incident or accident stabilises, keep the Authority updated on the development and the measures of implementation plan.

(5) The Authority shall make recommendations on future preventive measures to be undertaken by the operator as it deems fit.

(6) A person who fails to comply with this regulation commits an offence.

(7) For the purpose of this regulation, “serious injury” includes any injury involving the loss of or impairment in the use of any limb or other part of the body or one which results into such incapacity, whether temporary or permanent, that the victim is incapable to continue with the work engaged immediately before the injury.

162. The ZPDC, contractor, operator, or any other person engaged in petroleum operations shall, not later than March 1st of each year, submit to the Authority a written report setting out the number of incidents, occupational diseases and other hazardous occurrences which affect any of the employees in the course of employment during the twelve month period ending December 31 in the preceding year.

Reporting obligation.

163.-(1) Upon receipt of a notice under these Regulations, the Authority may appoint an independent person to undertake an inquiry into the cause of the incident or accident at a facility or during petroleum operations.

Inquiry into incidents and accidents.

(2) The Authority may appoint a legal counsel to assist the persons appointed under sub regulation (1) of this regulation in conducting the inquiry.

(3) Persons conducting an inquiry under this regulation may:

- (a) subject to confidentiality requirements, open the inquiry to the public and conduct the inquiry in a manner and

under conditions considers fit for ascertaining the cause and circumstances of the incident or accident;

- (b) give notice to any person to appear at a hearing to give evidence and to produce such documents referred in the notice; and
- (c) take evidence on oath or affirmation and may for that purpose:
 - (i) require a person appearing at the hearing to give evidence, either to take an oath or make an affirmation;
 - (ii) administer an oath or affirmation to the person summoned;
 - (iii) call for the production of relevant books and documents for purposes of the inquiry;
 - (iv) examine any person or witness, either alone or in the presence of any other authorized person; and
 - (v) exercise other powers as may be necessary for purposes of the inquiry.

(4) A person given notice to appear as a witness at a hearing under sub regulation (3) of this regulation who without reasonable cause:

- (a) fails to attend a hearing; or
- (b) fails to produce a document required under the Act and these Regulations,

commits an offence and shall be liable to pay a fine of Tanzania shillings equivalent to not less than Twenty Thousands United State dollars to the Authority in the first instance and a further penalty of two percent of the penalty for each day that the contravention of the regulation continues.

(5) Upon conclusion of the inquiry, the independent person appointed under sub regulation (1) of this regulation shall report the findings to the Authority and send a copy to the operator.

(6) A notice requiring a witness to appear at an inquiry to be held as specified under Form No. 5 of the First Schedule of these Regulations.

PART FIFTEEN MISCELLANEOUS PROVISIONS

164.-(1) Subject to the provisions of section 132 of the Act, the ZPDC, contractor, operator, or any other person engaged in petroleum operations shall prepare and implement the preventive and responsive plan for petroleum spillage during petroleum operations in compliance with the Zanzibar Oil Response Contingency Plan for Petroleum (Upstream) Operations.

Spillage
during
petroleum
operations.

(2) The ZPDC, contractor, operator, or any other person engaged in petroleum operations shall in any case not later than twenty-four hours, notify the Authority and other relevant institutions of the spillage of any hazardous material and substance inside the facility or during petroleum operations.

(3) The entities referred under sub-regulation (2) of this regulation, shall after the spillage occurs submit to the Authority and other relevant institution a written report which includes the following:

- (a) the cause and nature of the spillage;
- (b) the estimated amount of spillage and the method of estimating it;
- (c) the number of people on board;
- (d) the amount of spillage recovered;
- (e) the weather sea state and tidal condition;
- (f) precautionary measures taken since the spillage to prevent any hazard that may arise from the spillage;
and

- (g) precautionary measures taken to prevent such spillage in the future.

Effluent
and
drainage
during
petroleum
operations.

165.-(1) The ZPDC, contractor, operator, or any other person engaged in petroleum operations shall ensure that:

- (a) drainage and disposal of a facility effluent and drainage water conform to these Regulations, the Act, the Zanzibar Environment Management Act and standards approved by the Authority and with regard to the Best International Petroleum Industry Practices of the mode of disposal;
 - (b) the complete analyses of the effluent and drainage water are performed at regular intervals in accordance with standards approved by the Authority and with regard to the Best International Petroleum Industry Practices and results of the analyses are clearly entered in a special register kept for that purpose and every entry shall be duly signed by the person-in-charge of the facility or petroleum operations; and
 - (c) adoption of all practicable precautions including the provision of up-to-date equipment to prevent pollution of the environment by petroleum and where such pollution occurs shall take prompt steps to control and minimise the impact of the pollution in accordance with applicable laws in Zanzibar and with regard to the Best International Petroleum Industry Practices.
- (2) An authorised officer may draw samples of any effluent and drainage water at any time for analysis.
- (3) A person who contravenes this regulation commits an offence.

166.-(1) The ZPDC, contractor, operator, or any other person engaged in petroleum operations shall ensure that safety representatives are appointed at every facility or petroleum Operations in accordance with these Regulations, Act, Occupational Safety and Health Act, and any other applicable laws.

Appointment of safety representatives.

(2) The appointed representatives under sub regulation (1) of this regulation shall have requisite qualification and certification on Health, Safety and Environment matters.

167.-(1) Where a safety representative considers that the life or health of employees is in immediate danger and the danger cannot be averted by other means, may order for the work to be halted until:

Power of safety representative to halt dangerous work.

- (a) the safety inspector decides whether work may be continued; or
- (b) the safety representative is satisfied that the matter causing the danger has been rectified or that the danger has been averted.

(2) Where the safety representative orders the work to be halted under sub-regulation (1) of this regulation, shall inform person-in-charge of the facility or petroleum operations, of the reason for the decision and the remedial actions to be undertaken before the operations resumed.

168.-(1) A facility or petroleum operations which employs more than twenty employees shall have a working environment committee comprising of a representative of the operator and employees.

Establishment of safety committees.

(2) The working environment committee shall participate in planning for safety in the work environment and shall follow up developments relating to the safety, health and welfare of the employees.

(3) The working environment committee shall consider the following:

- (a) matters relating to the occupational health service and the internal safety service;
- (b) matters relating to training, instruction and information activities in the facility or petroleum operations that are of significance for the working environment;
- (c) plans that require the consent of the authorized person and other plans that may be significant for the working environment, including plans for construction work, purchase of machines, rationalisation, work processes and preventive safety measures; and
- (d) establishment and maintenance of a systematic health, environment and safety work during petroleum operations.

Inspections
of facility.

169.-(1) The Authority shall organise inspection of facilities or other measures of control appropriate to the type of the facility.

(2) The inspection or control measures referred to in sub regulation (1) of this regulation, shall be sufficient for a planned and systematic examination of the systems employed at the facility, whether of a technical, organisational or managerial nature, and shall ensure that:

- (a) a person-in-charge demonstrates that appropriate measures to prevent major incidents, hazards or accidents have been taken;
- (b) a person-in-charge demonstrates that appropriate means for limiting the consequences of major incidents, hazards or accidents both inside and outside the facility; and
- (c) the information contained in every report submitted to the Authority by the person-in-charge of the facility adequately reflects the conditions in the facility.

(3) A system of inspection referred to in sub regulation (1) of this regulation, shall have the following conditions:

- (a) a plan of inspections for all facilities;
- (b) where the plan is based upon a systematic appraisal of major incident, hazard or accident of a particular facility concerned, the plan shall entail at least one on-site inspection made on behalf of the Authority in every twelve months;
- (c) a report shall be prepared by the Authority after each inspection; and
- (d) where necessary, the findings shall be addressed by the operator within two months following the inspection.

170.-(1) The Authority shall prohibit a petroleum operations of a facility or the bringing into operation of a facility or installation or any part of a facility or installation where:

Power to prohibit the use of installation or facility.

- (a) the measures taken by the operator for the prevention and mitigation of major incidents, hazards or accidents do not meet requirements of these Regulations, any other applicable law, standards approved by the Authority and with regard to the Best International Petroleum Industry Practices; or
- (b) an operator has failed to submit notification, report or other information required under these Regulations.

(2) Where the Authority proposes to prohibit a petroleum operations of a facility or the bringing into operation of a facility or installation, the Authority shall give the operator a notice giving reasons for the prohibition and requiring the operator to rectify the issues identified in the notice.

(3) An operator shall comply with the notice issued under sub regulation (2) of this regulation, within the time specified in the notice.

(4) The Authority may withdraw the notice at any time in writing where the operator implements the measures specified in the notice under sub-regulation (2) of this regulation to the satisfaction of the Authority.

Compensation for Injured Person in petroleum operations.

171. Where there is an occurrence of injury for the persons involved in the petroleum operations, the contactor or operator shall be liable to pay compensation in accordance with relevant laws and with regard to the Best International Petroleum Industry Practice approved by the Authority.

Onshore station.

172.-(1) Where a person has a platform in the contract area, unless for the fixed platform and no persons are on it, there shall at all times be maintained in onshore station from which radio or telephone communication made to and received from the platform.

(2) Radio or telephone communications shall be made from the onshore station to the platform at least once in each period of three hours except during a period when the person-in-charge of the platform has ordered by reason of operations being carried out on the platform, that the communication shall not be made.

(3) Where the onshore station is unable, arrangements shall immediately be made for contact with the platform by a surface vessel or helicopter, unless a stand-by vessel stationed in the immediate vicinity of a platform when radio interference makes communication between the onshore station and platform ineffective.

Control and monitoring of vessel and aircraft.

173. Where a vessel or aircraft is in transit between onshore station and a platform in the contract area in connection with petroleum operations being carried on in the contract area, shall be controlled and monitored from an onshore station, the platform or both.

174.-(1) Where the Authority determines that it is necessary, a helicopter service for all operators shall be maintained between the offshore platforms in a contract area and onshore station.

Helicopter
or other
rescue
craft.

(2) Where a helicopter service not required, a vessel equipped with radio communication equipment and suitable for use in rescue operations shall be maintained at a place from which it can sail to the platform within one hour.

175.-(1) It is hereby established a Health, Safety and Environment Joint Committee to oversee Health, Safety and Environment and other related matters on petroleum operations which consist the following members:

Establish-
ment of
Health,
Safety and
Environment
joint
Committee.

- (a) a representative from ZPRA;
- (b) a representative from the Institution responsible for Management of Environment;
- (c) a representative from Institution responsible for Occupational Health and Safety;
- (d) a representative from Institution responsible for Disaster;
- (e) a representative from Institution responsible for Maritime; and
- (f) any other relevant institution authorized by ZPRA in consultation with the Ministry.

(2) The representative from ZPRA shall be the Chairperson of the Committee.

(3) The Committee shall meet ordinarily once in every month.

176. The Health, Safety and Environment Joint Committee shall have the following functions, to:

Functions
of Health,
Safety and
Environment
joint
Committee

- (a) discuss on various issues related to Health, Safety and Environment in relation to the petroleum Operations;

- (b) give recommendations to the Authority on Health, Safety and Environment issues in Petroleum operations;
- (c) inspect the facility or petroleum operations on Health, Safety and Environment matters in collaboration with the Authority;
- (d) audit working environment in collaboration with ZPRA;
- (e) prepare a report relating to the Health, Safety and Environment and submit to the Authority for further action; and
- (f) discharge any other task as directed by the Authority.

PART SIXTEEN
OFFENCES AND PENALTIES

Offences
and
penalties.

177.-(1) The ZPDC, Contractor, operator or any other person engaged in petroleum operations who:

- (a) fails to permit any inspection authorised under these Regulations;
- (b) makes a return required by these Regulations or furnishes information so required which is in any respect false; or
- (c) fails to comply with any order and direction given by the Authority under these Regulations,

commit an offence and shall be liable to pay fine to the Authority of Tanzania Shillings equivalent to:

- (a) in case of an individual, not less than Twenty-Five Thousand United State dollars.

(b) in case of a body corporate, not less than Fifty Thousand United State Dollars.

(2) In case of a second or subsequent contravention, commit an offence and shall be liable to pay a fine of Tanzania Shillings equivalent to not less than Fifty Thousands United State Dollars to the Authority.

(3) Where the person failed to make the payment under regulation 27 of these Regulations, the Authority shall institute the criminal proceeding against such person in accordance with the Act.

178. The ZPDC, Contractor, operator or any other person engaged in petroleum operations who contravenes with any provisions of these Regulations for which no penalty provided shall be liable to pay fine to the Authority equivalent to Tanzania shillings not less than Twenty Thousands United State Dollars.

General
Penalty.

The first part of the document is a letter from the Secretary of the State to the Governor, dated January 10, 1900. The letter is addressed to the Governor and is signed by the Secretary of the State. The letter discusses the appointment of a new member to the State Board of Education. The letter states that the Governor has appointed a new member to the State Board of Education, and that the Secretary of the State has received the appointment. The letter also discusses the duties of the new member and the responsibilities of the State Board of Education.

The second part of the document is a report from the State Board of Education, dated January 10, 1900. The report is addressed to the Governor and is signed by the Chairman of the State Board of Education. The report discusses the work of the State Board of Education during the year 1899. The report states that the State Board of Education has held several meetings and has discussed various matters relating to the education of the State. The report also discusses the progress of the State Board of Education in carrying out its duties.

The third part of the document is a report from the State Board of Education, dated January 10, 1900. The report is addressed to the Governor and is signed by the Chairman of the State Board of Education. The report discusses the work of the State Board of Education during the year 1899. The report states that the State Board of Education has held several meetings and has discussed various matters relating to the education of the State. The report also discusses the progress of the State Board of Education in carrying out its duties.

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FIRST SCHEDULE**FORM NO. 1****MATTERS TO BE ADDRESSED IN SAFETY
MANAGEMENT SYSTEMS****[Made under regulation 4(c)]**

1. A safety management system shall:
 - (a) be proportionate to the hazards, petroleum operations and complexity of the organization in the facility;
 - (b) be based on assessment of the risks; and
 - (c) include within its scope the general management system, including the organizational structure, responsibilities, practices, procedures, processes and resources for determining and implementing the major accident prevention policy.

2. The following matters shall be addressed by the safety management system:
 - (a) in relation to the organization and employees:
 - (i) the roles and responsibilities of employees involved in the management of major incidents, hazards and accidents at all levels in the organization, together with the measures taken to raise awareness of the need for continuous improvement;
 - (ii) the identification of the training needs of the employees and the provision of the training; and
 - (iii) the involvement of employees and of subcontracted workers in the facility, who are important from the point of view of safety;

- (b) the identification and evaluation of major incidents, hazards and accidents;
- (c) the adoption and implementation of procedures for systematically identifying major hazards arising from normal and abnormal operation, including subcontracted operations where applicable, and the assessment of their likelihood and severity;
- (d) in relation to operational control:
 - (i) the adoption and implementation of procedures and instructions for safe operation, including maintenance of plant, processes, equipment, alarm management and temporary stoppages;
 - (ii) the taking into account of available information on Best International Petroleum Industry Practices approved by the Authority for monitoring and control, with a view to reducing the risk of system failure;
 - (iii) the inventory of the facility's equipment, and the strategy and methodology for the monitoring and control of the condition of the equipment; and
 - (iv) appropriate follow up actions and any necessary counter-measures.
- (e) the management of change including the adoption and implementation of procedures for planning modifications to or the design of new installations, processes or storage facilities;
- (f) in relation to planning for emergencies:
 - (i) the adoption and implementation of procedures to identify foreseeable emergencies by systematic analysis; and
 - (ii) the preparation, testing and review of emergency plans to respond to emergencies and the provision of specific training for employees in a facility, including subcontracted workers;

(g) in relation to monitoring performance:

- (i) the adoption and implementation of procedures for the ongoing assessment of compliance with the objectives set by the contractor's major accident prevention policy and safety management system and the mechanisms for investigation and taking corrective action in case of non-compliance;
- (ii) the procedures must cover the contractor's system for reporting major accidents or near misses, particularly those involving failure of protective measures, their investigation and follow-up on the basis of lessons learned; and
- (iii) the procedures shall also include performance indicators such as safety performance indicators and other relevant indicators;

(h) in relation to audit and review:

- (i) the adoption and implementation of procedures for periodic systematic assessment of the major incident or accident prevention policy and the effectiveness and suitability of the safety management system; and
- (ii) the documented review of performance of the policy and safety management system and its updating by the contractor, including consideration and incorporation of necessary changes indicated by the audit and review.

Signed for and on behalf of the contractor.

Designation

Name

Date

FORM NO. 2

**MINIMUM INFORMATION TO BE INCLUDED IN
A SAFETY CONCEPT****[Made under regulation 53(2)]**

1. Information on the contractor management system and on the organization of the facility or installation with a view to major incident or accident prevention including the matters set out in in these Regulations in relation to the process safety management system.
2. The environment of the facility or installation stating:
 - (a) a description of the facility and its environment including the geographical location, meteorological, geological, hydrographic conditions and, if necessary, its history;
 - (b) identification of installations and other operations of the facility that may present a major incident, hazard or accident;
 - (c) on the basis of available information, identification of neighboring facilities, as well as sites that fall outside the scope of these Regulations, areas and developments that may be a source of or increase the risk or consequences of a major incident, hazard or accident and its effects; and
 - (d) a description of areas where a major incident or accident may occur.
3. The details of the facility including:
 - (a) a description of the main operations and products of the parts of the facility which are important from the point of view of safety, sources of major incidents or accident risks and conditions under which a major incident or accident may happen, together with a description of proposed preventive measures;

- (b) a description of processes, in particular the operating methods;
- (c) where applicable, taking into account available information in regard with the Best International Petroleum Industry Practices approved by the Authority; and
- (d) a description of hazardous substances, including:
 - (i) an inventory of hazardous substances including the identification of hazardous substances and the maximum quantity of hazardous substances present or likely to be present;
 - (ii) the physical, chemical, toxicological characteristics and indication of the hazards, both immediate and delayed for human health and the environment; or
 - (iii) the physical and chemical behavior under normal conditions of use or under foreseeable accidental conditions.

4. Identification and accidental risks analysis and prevention methods:

- (a) a detailed description of the possible major incident or accident scenarios and their probability or the conditions under which they might occur including a summary of the events which may play a role in triggering each of these scenarios, the causes being internal or external to the facility including in particular:
 - (i) operational causes;
 - (ii) external causes, such as those related to domino effects, sites that fall outside the scope of these Regulations, areas and developments that could be the source of or increase the risk or consequences of a major accident; or
 - (iii) natural causes, for example earthquakes or floods;
- (b) an assessment of the extent and severity of the consequences of identified major incidents or accidents including maps, images or

as appropriate, equivalent descriptions showing areas which are likely to be affected by such incidents or accidents arising from the facility;

- (c) a review of past accidents and incidents with the same substances and processes used, consideration of lessons learned from the past accidents and incidents and explicit reference to specific measures taken to prevent such accidents; and
- (d) a description of technical parameters and equipment used for the safety of facilities.

5. Measures of protection and intervention to limit the consequences of a major incidents, hazards or accident, including:

- (a) a description of the equipment installed in the facility to limit the consequences of major incidents, hazards or accidents for human health and the environment, including detection or protection systems, technical devices for limiting the size of accidental releases including water spray, vapor screens, emergency catch pots or collection vessels, shutoff valves, inserting systems and water retention;
- (b) the organization of alert and intervention;
- (c) a description of mobilisable resources, internal or external; and
- (d) a description of any technical and non-technical measures relevant for the reduction of the impact of a major accident.

Signed **for and on behalf of the company.**

Designation

Name

Date

FORM NO. 3**MATTERS TO BE INCLUDED IN AN EMERGENCY
RESPONSE PLAN****[Made under regulation 120(1)(e)]**

The Emergency Response Plan shall describe:

1. Site and hazard detail showing:

- (a) the location of the facility in sufficient detail; and
- (b) a map of the facility:
 - (i) showing the site;
 - (ii) showing land use and occupancy in the surrounding area, any other closely located major hazard facilities and hazardous chemical storage sites; and
 - (iii) identifying all potentially hazardous inventories in the area that are known to the contractor or operator and the location of all staging points for emergency services;
- (c) an inventory of all hazardous chemicals present or likely to be present at the facility, and their location;
- (d) a brief description of the nature of the facility and its operation;
- (e) the maximum number of persons likely to be present at the facility on a normal working day;
- (f) the emergency planning assumptions, including emergency measures planned for identified incidents and areas likely to be affected;
- (g) the protective resources available to control an incident, hazard or accident;

- (h) the emergency response procedures; and
- (i) the infrastructure likely to be affected by a major incident, hazard or accident.

2. Command structure and site employees demonstrating:

- (a) the command philosophy and structure to be activated in an emergency, what actions will be taken, who will take the actions and how, when and where the actions will be taken;
- (b) details of the person who can clarify the emergency plan if necessary;
- (c) the contact details and the means of contacting the persons at the facility responsible for liaising with emergency services;
- (d) a list of 24-hour emergency services contacts; and
- (e) arrangements for assisting emergency services and nearby facilities with control actions to be taken in the surrounding area.

3. Notifications:

- (a) in the event of the occurrence of a major incident or accident or an event that could reasonably be expected to lead to a major incident or accident, procedures for notifying the emergency services;
- (b) after a major incident or accident has occurred, procedures for providing the local community, the local authority and the surrounding area with information about the major incident or accident;
- (c) procedures for activating warning systems;
- (d) contact details for emergency services and other support services that can assist in providing resources and implementing evacuation plans in the event of a major incident or accident; and

- (e) procedures for initiating communication systems.

4. Resources and equipment:

- (a) on-site emergency resources, including emergency equipment, employees, gas detectors, wind velocity detectors, sand, lime, neutralizing agents, absorbents, spill bins and decontamination equipment; and
- (b) off-site emergency resources, including arrangements for obtaining additional external resources specific to the likely major incidents to assist the control of major incidents and major accident.

5. Procedures:

The Emergency Response Plan shall describe the following procedures:

- (a) for the safe evacuation of, and accounting for all people on site and control points for utilities, including gas, water and electricity;
- (b) for the control of any incident involving hazardous chemicals; and
- (c) for decontamination following an incident involving hazardous chemicals.

Signed for and on behalf of the contractor or operator

Designation.....

Name

Date

FORM NO. 4

NOTIFICATION OF ACCIDENT OR INCIDENT
[Made under regulation 161(1)]

- Date:
- To: The Managing Director,
Zanzibar Petroleum Regulatory Authority - ZPRA
1. Name and address of contractor or operator
 2. Date of accident/incident time:
 3. Place of accident or incident:
 - (a) Location:
 - (b) District:
 - (c) Region:
 4. Nature of accident:
 5. How accident /incident occurred:
 6. Name of injured/deceased person (s):
 7. Sex: Age:
 8. Particulars of the injured/deceased:
.....
 9. Date and time of application of first aid:
 10. Date of injured person was sent to hospital:

11. Place where injured person may be interviewed:

12. Names of eye-witnesses, if any, and copies of any statement taken at the time of or immediately after the incident under report:

.....
.....
.....

13. State whether in your opinion there was any degree of serious or willful misconduct involved.

Signed for and on behalf of the contractor or operator

Designation

Name

Date

FORM NO. 5

NOTICE TO A WITNESS TO APPEAR AT AN INQUIRY
[Made under regulation 163(6)]

To: (1)
(2)
(Name of person notified, his or her profession and address, if known)

You are hereby notified to appear before the undersigned at
on the day of 20..... and to give evidence at an inquiry
being held into an accident or incident that occurred on the day of
..... 20, and you are required to bring with you:

.....
.....
.....
.....

(If the person notified to produce any documents, specify the books, plans and documents required).

.....
.....
.....
.....

Given under my hand at, this day of, 20.....

.....
Independent person

SECOND SCHEDULE
SAFETY SIGNS
[Made under regulation 12(2)]





Warning signs

DANGER OF
DEATHDANGER
OVERHEAD CRANEHIGH NOISE
LEVELSNOTIFIED
RADIATIONGENERIC
DANGERDANGER HIGHLY
FLAMMABLEFIXED OVERHEAD
HAZARD

HIGH VOLTAGE

RADIATION
HAZARDRISK OF
EXPLOSION

TRIP HAZARD

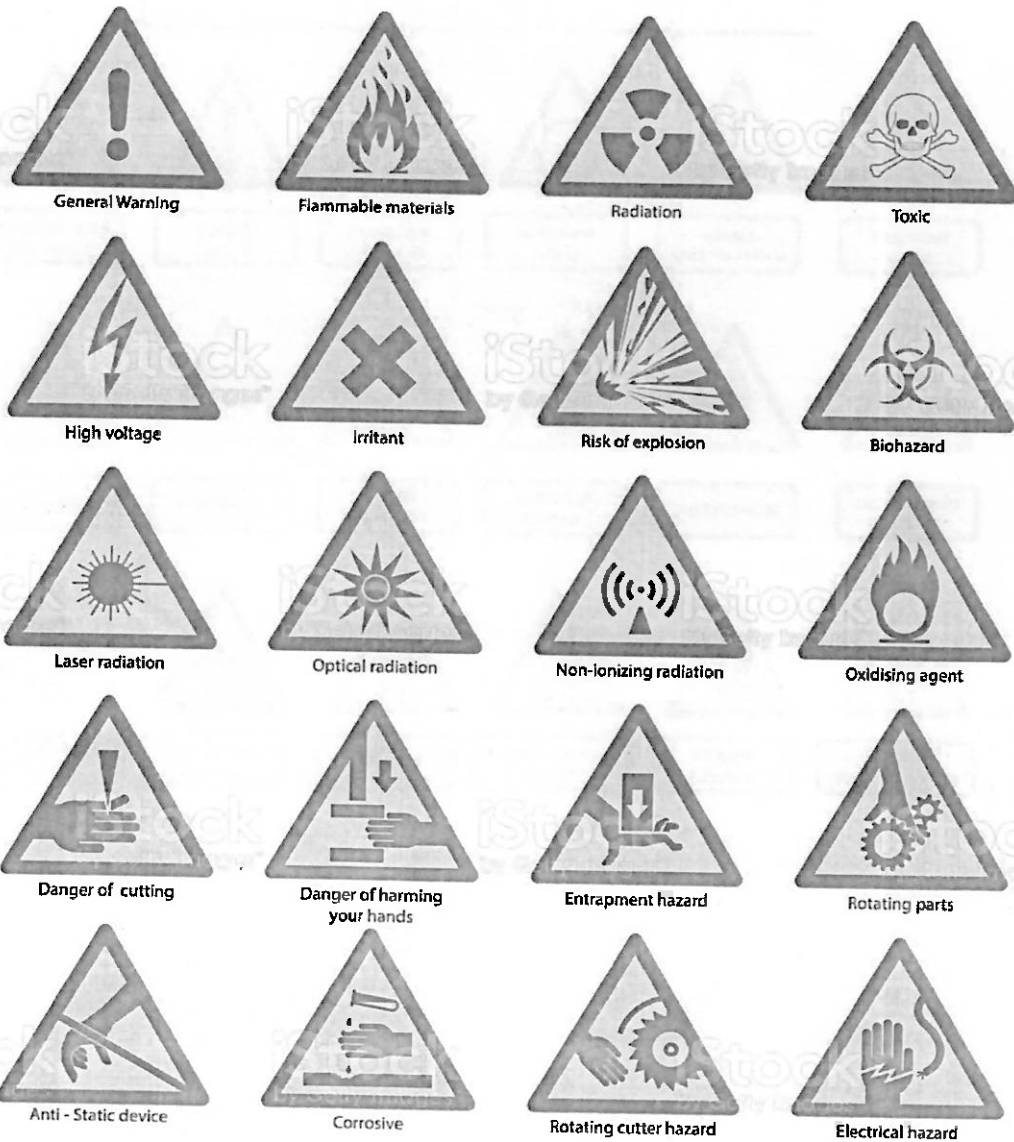


POISON

WARNING
OVERHEAD LOADSDANGER
HARMFULDANGER FOR LIFT
TRUCKS

BIOHAZARD

INHALATION
HAZARDCORROSIVE
MATERIAL



SIGNED on this 23rd day of September, 2022.

.....
(SULEIMAN MASOUD MAKAME)
MINISTER FOR BLUE ECONOMY AND FISHERIES
ZANZIBAR

Printed by Zanzibar Government Printing Press Agency - Price 15,000/=

