

# MINISTRY OF ENERGY



## HEALTH SAFETY AND ENVIRONMENT POLICY

### *For The Energy Sector*

*November, 2016*

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# SECTION ONE

## INTRODUCTION

### i. Overview of the Energy Sector

The Ministry of Energy is responsible for the formulation, co-ordination, monitoring and evaluation of policies and programmes for the Energy Sector in Ghana. The Energy sector is divided into two major sub-sectors, the petroleum sub-sector and the power sub-sector.

### Petroleum Sub-sector

The Petroleum Directorate of the Ministry has oversight responsibilities over eight (8) Sector Agencies in the implementation of sector policies. They are, Ghana National Petroleum Corporation (GNPC), Ghana National Gas Company Limited (GNGC), Petroleum Commission (PC), National Petroleum Authority (NPA), Tema Oil Refinery (TOR), Bulk Oil Storage and Transportation (BOST) Company, Ghana Cylinder Manufacturing Company (GCMC), and Ghana Oil Company Limited (GOIL), which is listed on the Ghana Stock Exchange (GSE).

Ghana's petroleum sector comprises of two main sub-sectors, namely; the Upstream and Downstream.

Petroleum Upstream involves; exploration, appraisal, development, production and decommissioning. Exploration for oil and gas in Ghana started in 1896 in the onshore Tano Basin of the Western Region, with the drilling of well by the West Africa Oil and Fuel Company. Exploration activities continued with other International Oil Companies, until 1970 when the Saltpond Field was discovered by the Signal Amoco Group.

In order to intensify exploration activities, Ghana National Petroleum Corporation, (PNDC Law 64) was setup and the Petroleum Exploration and Production Law, (PNDC Law 84) was enacted to govern petroleum exploration activities in Ghana. During this era, GNPC played a dual role of regulator and commercial entity.

Following the discovery of oil in commercial quantities in 2007 (Jubilee Field) and in order to bring transparency and predictability into the petroleum upstream

sub-sector, an independent upstream regulatory body (Petroleum Commission), was established by Act 821 of Parliament in 2011. The objective of Petroleum Commission is to regulate and manage the utilisation of petroleum resources and to coordinate the policies in relation to them.

In an effort to harness indigenous gas resources and prevent the indiscriminate flaring of natural gas, the Western Corridor Gas Infrastructure Project was created. The first stage was the Ghana Gas Processing Plant with its auxiliary facilities which was commissioned in 2015. The Processing Plant is connected to the Jubilee field by a 65km pipeline and a 111km onshore pipeline to thermal plants at Aboadze. The plant has a phase 1 processing capacity of 150 mmscfd, with allowance for future expansion.

The petroleum Downstream sub-sector of Ghana involves importation of crude oil and finished products, refining, storage, transportation (road, rail, lake and ocean), marketing and sale of petroleum products. In 1961 the Government of Ghana (GoG) in partnership with the National Hydrocarbon Trust of Italy (Ente Nazionale Idrocarburi, ENI) established the Ghanaian Italian Petroleum Company Ltd. (GHAIP) to take responsibility of processing crude oil in the country. However, all the shares of GHAIP were acquired by the Government in the mid-70s and was renamed the Tema Oil Refinery (TOR) in 1987 to import and process crude oil into petroleum products to feed the domestic market.

In 1986, GoG took a decision to build a Lubricant Blending Plant in the country. The Government contracted AgipPetroli of Italy to design and construct the Plant. The construction of the Plant was completed in 1991.

In line with GoG's policy on privatization, Oil Marketing Companies (OMCs) operating in Ghana at that time were invited to form a consortium to buy the Plant and operate it. The OMCs agreed and established Tema Lube Oil Company (TLOC) on October 9, 1990 to acquire the Plant. Blending of lubricants commenced in 1992.

In 1993, the Bulk Oil Storage and Transportation Company Limited (BOST) was incorporated as a private limited liability company with GoG as the sole shareholder. Until May 2001, BOST was responsible for the distribution of refined petroleum products from its strategic depots located throughout the country. In 2012, the Energy Commission (EC) granted BOST the Natural Gas Transmission Utility (NGTU) License to provide transmission and interconnection services for natural gas without discrimination throughout the country.

In 2005, the National Petroleum Authority (NPA) was created by an Act of Parliament (NPA Act 691), to regulate, oversee and monitor petroleum downstream industry, to ensure efficiency, growth and stakeholder satisfaction.

### **Power Sub-sector**

The Power Directorate of the Ministry has oversight responsibilities over six (6) Sector Agencies in the implementation of sector policies. They are, Volta River Authority (VRA), Ghana Grid Company (GRIDCo), Electricity Company of Ghana (ECG), Northern Electricity Distribution Company (NEDCo), Energy Commission (EC), Bui Power Authority (BPA)

Electricity is the dominant modern energy form used in the industrial and service sectors. The generation and supply of electricity provides employment for a significant number of Ghanaian professionals. It is also an important source of foreign exchange earnings in the country as Ghana exports power to neighbouring countries, including Togo, Benin, and Burkina Faso

The Ghana electricity supply industry is unbundled with separate jurisdictions and entities regarding activities of electricity generation, transmission and distribution. Electricity generation is undertaken by the following:

- a) The state-owned Volta River Authority (VRA) operates the Akosombo Hydro Power Station, Kpong Hydro Power Station, Takoradi Thermal Power Plant (TAPCO) at Aboadze, Tema thermal Power Complex at Tema and the Kpone Thermal Power Station, at Kpone. VRA also generates power from its Navrongo Solar Power Plant, near Navrongo. VRA is also a minority joint partner with TAQA, a private sector company that owns and operates the Takoradi International Power Company (TICO) thermal power plant also located at Aboadze.
- b) Bui Power Authority (BPA), another state-owned entity, located at Bui also provides hydroelectric power generation.
- c) In addition, there are several independent power producers in operation, and others have been licensed to build, own and operate power plants.

The National Interconnected Transmission System (NITS) for electricity is owned and operated by the Ghana Grid Company (GRIDCo). GRIDCo is a state-owned company. The distribution of electricity is done by the Electricity Company of Ghana (ECG), a state-owned company, and the Northern Electricity Distribution Company (NEDCo), a subsidiary of the Volta River

Authority (VRA).

The Energy Commission (EC) and the Public Utilities and Regulatory Commission (PURC) regulate the electricity supply industry. The Energy Commission, in addition to being responsible for technical regulations in the power sector, also advises the Minister for Energy on matters relating to energy planning and policy. The PURC on the other hand is an independent regulatory agency responsible for the economic regulation of the power sector with the mandate to approve rates for electricity sold by electricity distribution utilities.

## **ii. Background**

### **a. Overview of HSE in Ghana's Energy Sector**

Energy sector operations have the potential to cause irreparable damage to the environment and compromise the health, safety and security of the people, thus affecting the sustainable development of the country. It is important that health, safety, security and environmental issues are integrated into the planning and development of the sector.

In pursuance of the above objective and the energy sector vision of Ghana, the Ministry of Energy deems it necessary to develop a proactive policy that will create the enabling environment for energy sector activities to be conducted in a safe and environmentally friendly manner.

### **b. Policy Vision**

The Ministry of Energy bases its programmes on the Ghana Shared Growth Development Agenda (GSGDA II). Under the GSGDA II, GoG through the Ministry of Energy is required to, among other things:

- Create an enabling environment for sustained exploration, development and production of Ghana's petroleum endowment.
- Provide security for petroleum installations and operations in the upstream and downstream.
- Provide security for power installations and operations in the generation, transmission and distribution.

### **c. Policy Goal**

Ensure that energy sector activities cause as little harm as possible to people, property, environment and national reputation.

### **d. Policy Objectives**

Promote the consideration of sound and sustainable health, safety, security and environmental practices in the development of regulations and standards for the energy industry.

The key objectives of the policy are as follows:

- **Regulatory directions for harmonizing industry activities**

The policy will give direction to the formulation of a fit for purpose regulation. With the regulations in place, best industry standards and codes of practice will be defined by the regulators to ensure guidance the for industry;

- **Harmonized regulatory mandates**

Creating an appropriate framework that seeks to harmonize the mandates among relevant stakeholders with the view to creating synergies and avoiding overlaps;

- **Ensuring compliance to HSSE prescriptions at all times**

To support regulatory mandates in ensuring that HSSE prescriptions are not compromised in meeting national and or operatorship targets in petroleum activities, a phenomenon that has largely accounted for very severe accidents in the petroleum industry;

### **e. Scope of Policy**

The policy describes the elements necessary to develop, implement and maintain a high level of safety in all energy sector activities. This is to guide and help the regulator to develop relevant regulations and standards which will ensure that operators take into account relevant information about hazards, environmental effects, safety and security threats to their operations. To achieve this outcome, regulators are to ensure that, energy sector activities

are carried out in an efficient manner that strives for continuous improvement of HSSE performance.

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## **SCOPE, APPROACH AND GUIDING PRINCIPLES**

### **i. Scope and Applicability**

The policy describes the elements necessary to develop, implement and maintain a high level of HSSE complians in all activities. To achieve the targeted outcome, energy sector activities are required to be carried out in an efficient manner that strives for continuous improvement of HSSE performance.

This policy will guide energy sector activities across the entire value chain for a period not exceeding five (5) years, after which period it shall be revised according to the method prescribed in various sections of this document (except in the cases of major events which requires immediate review).

### **ii. Approach**

#### **Establish working group and Terms of Reference**

The basic framework and initial inputs for this policy was developed by a working group of HSSE practitioners that were drawn from stakeholder institutions from both the petroleum and power sub-sectors. A number of workshops were organized, to harmonise the views of these practitioners.

It is recommended that future revisions should consider this approach to obtain as much detailed information as possible from each sub-sector of the industry.

#### **Create a policy template to serve as a guide for consideration**

The initial policy approach was to proactively assess hazards in the energy industry value chain with the view to identifying and assessing the impacts of the risks posed.

The mitigating methods were the key ingredients that informed the policy direction.

The initial hazards evaluated for this policy have been compiled and presented in section two of this policy document.

### **iii. Guiding principles**

The drafting of this policy took into consideration, the following principles;

#### **Top down driven process**

There is the need for top management to provide strong visible commitment, leadership and personal involvement in HSSE issues. This would also ensure that HSSE matters are accorded critical importance in the decision making process of all energy industry programmes, projects and issues. The necessary resources to achieve HSSE strategic objectives would be made available. It would promote the enforcement of the HSSE policy requirements and relevant standards in all aspects of Energy industry operations.

#### **Learn from Best Industry Standards and Practices.**

In formulating and revising this policy, due consideration has and will be given to global best practices and adequate consideration made for addressing topical incidents that have gained international repute. With this approach, it is envisaged that best industry practices will underpin the practicability of this policy and help establish good hallmarks in the revision process.

#### **Streamlining of regulatory framework**

This policy will serve as a benchmark in streamlining laws, regulations and guidelines, whenever and wherever it becomes necessary, with the view to making them more coherent and pragmatic for compliance.

### **Clear and understandable regulatory framework.**

It is envisaged that this policy will help remove ambiguity in laws, regulations and guidelines with the view to making compliance devoid of disputes.

### **Harmonize with past and ongoing Ghanaian HSSE regulatory activities**

This policy recognizes existing and pending laws, regulations and guidelines with the view to enhancing their relevance from a comprehensive perspective.

### **A blend of prescriptive and goal setting regulations**

The basic approach of this policy shall be goal setting but prescriptive whenever and wherever it becomes necessary to augment or prop the goal setting requirement.

### **Multi – stakeholder Participation**

A multi-stakeholder participation was attained to produce an acceptable document clearly outlining best practices that promote high standards for health, safety, security and the environment in all energy sector activities. This will ensure that the policy is accepted and owned by Ghanaians.

### **Establish policy areas; existing policies and regulations (Gap analysis)**

This policy serves to elaborate on the vision of the Ministry of Energy in ensuring adequate safeguards are provided in energy sector activities. The Ministry recognizes that there are some existing safeguards in place and there are on-going frantic efforts in the Upstream to put some in place. Notwithstanding, there is the need to consolidate and create synergies in regulating HSSE activities in both petroleum and power sub-sectors, and also help ensure that there is a mechanism in place to ensure continual improvement of HSSE requirements in the energy space of the country.

## **POLICY DIRECTION**

To ensure that HSSE in Ghana's energy industry attains international standards, government will take the following path:

### **1. Government Stakeholder Alignment including**

The Ministry of Energy would create a platform that continuously engages all regulatory institutions and key stakeholders in the energy space. The platform would have guidelines for engagement and will obtain the consent of all the mandated institutions. The decisions and outcomes of the mandated institutional engagements shall be used in the revision of this policy;

### **2. Establish Multi stakeholder working group between (IOCs, Service providers)**

Registered entities involved in energy sector activities will need to create a nucleus of HSSE practitioners that will periodically review their activities against a backdrop of this policy. This will ensure that experiences gained from local and international incidents are shared and lessons learnt collectively to avoid recurrence in the country's energy industry.

It is expected that the nucleus of HSSE practitioners will create synergies and ensure effective coordination and monitoring of all aspects of HSSE in all projects and operations.

### **3. Strengthening compliance to HSSE requirements**

This policy recognizes the burden on regulators of energy sector activities to usually ensure that productivity is aligned to meet national targets, which in most instances also aligns with operatorship targets. In some instances, the regulators obtain direct benefits from increased productivity. Therefore, to avoid conflict of interest, there is the need to have a third party that seeks HSSE compliance only. The Petroleum Safety Department of Norway by example serves such a purpose. It is the intent of this policy to progressively develop the HSSE of the Ministry of Energy to become an autonomous entity to coordinate HSSE

activities in energy sector. This proposal recognizes the role of the various HSSE units in the regulators' mandates as advisors to the Chief Executives.

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## SECTION TWO

### ACTIVITIES OF THE POLICY

The activities to be pursued under this policy is to give direction for HSSE issues are given in the details below, it touches on identified hazards, the objective the policy direction seeks to obtain and the policy direction which aims at eliminating or managing the hazard.

#### **Static electricity**

The Objectives are:

- a. Ensure the provision, use and reliability of static electricity safeguards (anti-static equipment, tools, bonding, etc.) for all activities in energy industry installations<sup>1</sup>; and
- b. Improve employees' knowledge on static electricity.

To ensure that the objectives are realised:

- a. All tools and equipment used in energy industry installations should be certified by accredited institutions to be anti-static;
- b. Cablings and terminals used for ensuring continuity in bonding during hydrocarbon transfers between vessels/barges/ships/trucks/wagons and underground/aboveground tanks need periodic verification and certification to confirm appropriateness/fitness for purpose;
- c. The use of cables to ensure continuity in bonding between containments during hydrocarbon transfer should be mandatory at all times; and
- d. Operators in petroleum and power installations need to be periodically apprised on anti-static risks, norms and good practices.

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<sup>1</sup> Energy industry installations shall refer to all locations where energy sector activities are undertaken on a commercial basis for both power and petroleum sub-sectors.

## **Electricity**

The Objective is to;

- a. Improve employees' knowledge on electricity.
- b. Ensure electrical gadgets and machinery are always safe to use.
- c. Ensure that the public is safe from installations used for power generation, transmission and distribution

To ensure that the objectives are realised:

- a. All petroleum and power installations, and related offices are to develop safe use of electricity policies hinged around SOPs for electrical equipment use and maintenance;
- b. Employers should encourage the use of appropriate technology to ensure efficiency and safety;
- c. The general public should be sensitised on the risk associated with electricity installations for power generation, transmission and distribution.
- d. All petroleum and power installations, and related offices should train and develop the capacity of Staff/Workers on safe use of electricity;
- e. All work procedures/job safety analysis/permits-to-work should consider Electricity as a "High" risk hazard and appropriate controls should be put in place to manage its risk during the tenure of the works;
- f. Cablings in installations and offices should comply with recommended national standards. There should also be periodic verification and certification as fit for purpose;
- g. Only nationally accredited electrical contractors should be used for works at installations and offices; and
- h. All workers at petroleum and power installations, and related offices should periodically be apprised on the risks, norms and good practices on the use of electricity.
- i. There should be an emergency preparedness plan in place when all safeguards fail.

## **Hydrocarbons**

The Objectives are to:

- a. Avoid hydrocarbon spillage, emissions and its resultant fires and contamination;
- b. Improve employees' knowledge on hydrocarbon properties and containments.

To ensure that the objectives are realised:

- a. Containments and accessories for hydrocarbons should be identified by a national colour-coding system that will ensure consistency and safety awareness for people/staff/workers who encounter such facilities;
- b. Large Hydrocarbon containments should have early warning systems to show leakage or emissions immediately they occur;
- c. The shells of Containments should be verified and certified at recommended periods to confirm appropriateness for use;
- d. Progressively, underground tanks should be changed (or modified) to double containment facilities;
- e. Safety distances, recognised as national standards, should be established for hydrocarbon containments with respect to adjoining property or human habitats;
- f. In tank-farms and other places that hydrocarbons are kept in large quantities, zoning of locations should be done and brought to the attention of people /workers that enter such places;
- g. The storing of hydrocarbons in unapproved containers such as bottles, cans, etc., should be prohibited in all installations and offices;
- h. Installations should have tiered emergency procedures for spills;
- i. All (hot) works to be undertaken in hydrocarbon containments should be considered as "High Risk" and appropriate controls should be put in place to manage the risk during the tenure of the works; and
- j. All workers in installations should be periodically apprised on the properties, risks, norms and good practices in handling hydrocarbons.

## **Pressurized fluids**

The Objective is to prevent spillage and injury/fatality

To ensure that the objectives are realised:

- a. Signage and colour coding should be provided for all vessels, pipelines and accessories that contain pressurized fluids;
- b. All pressurized containments should be certified by an accredited institution for all times that the containment will be in use;
- c. All unauthorized persons, if not accompanied, should be kept off pressurized containments by physical barriers and adequate signage; and
- d. Tyre guards are recommended for use when large tyres are inflated at tyre centres.

### **Confined Space**

The Objective is to avoid discomfort, unconsciousness, asphyxiation and fatality in installations and offices.

To ensure that the objectives are realised:

- a. Spaces that are not designed for routine work and with poor or no ventilation shall not be accessed without a permit from the Head of the installation or office;
- b. For entry into such spaces, the Head of the installation or office shall ensure that all necessary precautions have been put in place (including use of gas analyzers and use of a watch person) to ensure safe entry and exit;
- c. It is recommended that such places are labelled accordingly particularly at installations;
- d. Progressively, remote operated vehicles (ROVs) should be used to substitute human labour in undertaking works in confined spaces; and
- e. Standard Operating Procedures and Permit to Work should be used when working in areas classified as confined space

### **Toxic gases**

The Objectives are:

- a. To avoid over exposure to toxic gases; and
- b. To improve knowledge and understanding of personnel who use gas-

test equipment.

To ensure that the objectives are realised:

- a. The storage and handling of purchased or generated toxic gases should be guided by SOPs;
- b. There should be certification to confirm that people who handle toxic gases are properly trained and equipped to do so;
- c. There should be national standards for the identification and handling of toxic gases used in the energy industry;
- d. Gas testing equipment should be mandatory for monitoring at locations with toxic gases and the equipment must be verified periodically to confirm fitness for purpose; and
- e. A Permit to Work process should be followed during maintenance works at areas with harmful gasses.

#### **Change in floor levels (Working at height)**

The Objective is to ensure no incidents from changes in floor levels, particularly when working at height.

To ensure that the objectives are realised:

- f. Offices and Installations should recognise slopes or step changes in floor levels with appropriate markings or warnings to caution people using such floors;
- g. When people perform work at places with floor level changes of more than 1 (one) meter, such activities should be considered as "WORKING AT HEIGHTS" and the necessary procedures should be followed;
- h. Capacity building and refresher courses should be provided to employees to ensure that they are well trained when undertaking activities relating to change in floor level; and
- i. Scaffolds should be certified by accredited institution(s).

### **Falling Loads**

The Objectives are to avoid:

- a. Injury or fatality; and
- b. Property damage.

To ensure that the objectives are realised:

- a. People should be restricted from standing or passing under a moving or suspended overhead load;
- b. All overhead loads in structures should be Labelled with the weight eligibly indicated on it;
- c. All types of cranes (including derricks) should have certificates from accredited institutions to indicate that they are fit for purpose within their prescribed load limits; and
- d. Fixed suspended equipment (e.g. gantries, wellheads, etc.), there should be periodic inspections and certification of supporting structure(s) by accredited institution(s).

### **Encroachment on buffer zones or exclusive zones**

The Objective is to ensure no "outside battery limits" incidents from depots, platforms or any major power installations.

To ensure that the objective is realised:

- a. All major petroleum and power installations onshore shall have buffer zones that shall be acquired by law as part of the installation; and
- b. All Major petroleum and power installations offshore shall have safety zones defined by appropriate legislation as part of the installation.

### **Slippery floor**

The Objective is to avoid falls.

To ensure that the objective is realised:

- a. Walkways at Installations shall be made from slip resistant materials/finishes.
- b. For temporary slippery floors, warnings shall be displayed to caution people.
- c. Employees should be educated or made aware of their surrounds in the form of formal talks or signage

### **General Transport and Moving Loads**

The Objectives are to avoid:

- a. Injury or fatality; and
- b. Property damage.

To ensure that the objectives are realised:

- a. Use of traffic wardens at office parking areas and signage or physical barriers to ensure very low speeds;
- b. Vehicles used within installations should have areas allowed for their movements properly demarcated and signage to keep off pedestrians;
- c. Vehicles used within installations should have reverse horns fitted;
- d. Road and rail transport used to serve the energy industry should meet criteria that is established by a legal instrument;
- e. Driver fitness and competencies should be established by medical certification and accredited license(s) respectively;
- f. Ocean and Lake vessels or barges should be certified by an authorized institution by law;
- g. Captains and other personnel on-board ocean and lake vessels or barges should have medical certification, certification on competencies to carry out functions and survival in the water medium she/he operates;
- h. Aircrafts used in petroleum activities should be certified by an authorized institution by law; and
- i. Air crew should have appropriate medical certification and accredited licenses for their areas of expertise.
- j. There shall be periodic reviews of all transport forms according to the prescribed procedures of the authorizing institution(s).

### **Ammunitions, firearms & other weapons**

The Objective is to avoid planned harm to people in offices and installations.

To ensure that the objectives are realised, the following will have to be undertaken:

- a. To undertake physical search on people and inspection of hand bags or the use of hand or fixed scanners;
- b. Security providers should maintain high levels of technical and professional proficiency in maintaining safety and security at operating sites without causing human rights abuses; and
- c. Security Providers should act in a lawful manner consistent with applicable local and international guidelines regarding the use of force and firearms, (including the UN Principles on the Use of Force and Firearms by Law Enforcement Officials)

### **Working posture (ergonomics)**

The Objective is to avoid temporary/permanent harm to people from work postures.

To ensure that the objective is realised:

- a. Chairs/seats and other work furniture used are recommended by an accredited authority.
- b. Periodic Safety Audits should be carried out on the facility to help identify ergonomic issues.
- c. Employees in offices should be sensitised on the right sitting posture.
- d. Ergonomics should be considered in the design of both petroleum and power facilities.

### **Dust & Particulates**

The Objective is to avoid over exposure and harm to the lungs.

To ensure that the objective is realised:

- a. Offices and Installations should take adequate steps to prevent the emission of dust or particulate matter;

- b. Dust suppression procedures shall be prepared and followed for offices and installations susceptible to dust exposure; and
- c. The use of asbestos material should be prohibited.

### **Harmful Rays**

The Objective is to avoid over exposure wherever harmful rays are used.

To ensure that the objective is realised:

- a. Seal off the area from unauthorized personnel.
- b. For personnel involved in the use of the rays, they should have medical certification and certification for the equipment and personnel competencies from an institution authorized by law.
- c. Monitor exposure levels of all personnel involved in the use of the rays,
- d. Inventories of radioactive materials requiring surveys shall be maintained which identify quantity, type, form and date of manufacture for unsealed and sealed radioactive material used in laboratories. Inventories will include unused materials, stock solutions and labelled compounds and waste.
- e. Licensed by-product materials stored in unrestricted areas shall be secured from unauthorized removal or access. Licensed by-product material used in unrestricted areas shall not be left unattended and be under constant surveillance.
- f. Post a "CAUTION" sign conspicuously on the doors to laboratory areas where radioactive materials are being used or stored in amounts greater than exempt quantities.

### **Non-compliance to standard operating procedures (SOPs)**

The Objective is to ensure mandatory compliance to procedures and precautions.

To ensure that the objective is realised:

- a. Ensure that all installations and offices shall have standard operating procedures for routine/non-routine works and there shall be mechanisms in place to ensure compliance at all times. Installations

and offices should have policies to deter non-compliance and to recognise excellence in compliance.

- b. Train employees on the company's procedures and processes.
- c. Further, companies need to benchmark their designs, activities, procedures and processes with international best practice.

### **Non-compliance to routine Maintenance**

The Objective is to avoid harm to people, the environment or damage to property.

To ensure that the objective is realised:

- a. Ensure that all Installations and offices shall have proactive maintenance regimes for all equipment supported by schedules and corresponding budgets.
- b. Record all maintenance activities undertaken and keep them alongside other schedules.

### **Manual Handling**

The Objective is to avoid injury or permanent deformation.

To ensure that the objective is realised:

- a. Ensure that all Installations and offices shall have a policy on manual handling of loads that shall establish allowable limits; otherwise loads should be handled by equipment and appropriate appliances/machinery only.
- b. Employees should be trained on manual handling procedures and create awareness for the need to use the right lifting techniques.

### **Rotating Parts**

The Objective is to avoid injury, permanent deformity, fatality or damage to property.

To ensure that the objectives are realised:

- a. All rotating parts in Installations and offices shall have protection/guards unless they are outside the reach of people;

- b. Periodic third party inspections to certify adequacy and appropriateness of protection;
- c. There should be a maintenance regime in place for shaft bearings and their fittings; and
- d. Standard Operating Procedures and Permit to Work should be used when working or maintaining machines with rotating parts.

## **Chemicals**

The Objectives are to:

- a. Avoid overexposure to corrosive compounds such as acids, basic solutions, etc. and harmful elements such as Lead, Mercury, etc.
- b. Improve employees' knowledge on hazardous chemicals.

To ensure that the objectives are realised:

- a. All Installations and offices shall keep material safety data sheets (MSDS) for all used chemicals or those in storage and make them available to handlers, and there shall be strict compliance to recommended methods of handling and use;
- b. Persons who handle chemicals in large quantities should have certification on appropriate training, adequate competencies and approved equipment to avoid spillage, contact or inhalation;
- c. There should be national standards on limits to the concentration allowed on harmful elements benchmarking with international best practice;
- d. For bulk chemical containments, there should be periodic verification and certification on fitness for purpose;
- e. Operators are encouraged to use less harmful chemicals as substitutes as and when they become available; and
- f. Standard Operating Procedures should be put in place when working with chemicals.

## **Noise**

The Objectives are to:

- a. Avoid damage to the ear drum; and
- b. Effectively manage the risk associated with noise at the facility

To ensure that the objective is realised:

- a. The noise levels at worksites/offices will need to comply with existing law and monitored as per EPA requirements; and
- b. For people working in high level noise locations, they should use protective equipment and there shall be periodic testing of their hearing abilities.

### **Fire**

The Objective is to avoid harm to people, property and the environment from fire outbreaks.

To ensure that the objective is realised:

- a. All Installations and offices should ban fire sources, unless required for processing;
- b. Office kitchenettes should not be fitted with stoves; micro wave ovens may be permitted;
- c. For kitchens fitted with cookers, stoves, etc., safety distances should be considered for their location;
- d. Fire sources in processing areas should be operated in accordance with standard procedures and permits should be issued and signed by the Head of the location if maintenance works are to be undertaken and such locations should have restricted access; and
- e. All Installations and offices should have fire emergency procedures that should be tested periodically.

### **Poor Illumination**

The Objective is to avoid harm to eyesight of personnel.

To ensure that the objective is realised:

- a. Check illumination levels periodically to ensure compliance to national standards otherwise necessary precautionary measures should be put in place.

### **Hot/cold surfaces**

The Objective is to avoid injury or permanent deformation.

To ensure that the objective is realised:

- a. Develop work procedures and permits to help in barricading people and property from hot/cold surfaces.
- b. If people should have contact with hot/cold surfaces, the Head of the location should issue a permit for the use of an appropriate equipment.

### **Thermal Requirement / Ventilations**

The objective is to ensure that building exist to protect employees from the elements and support human activity.

To ensure that the objective is realised:

- a. Buildings should not make people sick, cause them discomfort or otherwise inhibit their ability to perform.
- b. Ventilate all workplaces adequately.
- c. Jobs that involve excessive heat should be done intermittently.
- d. Inform your supervisor when you detect heat-related illness e.g. dizziness, light-headedness, weakness, blurred vision, nausea etc.
- e. When working in a hot environment, take cold water frequently
- f. Get good ventilation at all work areas.
- g. Perform the heaviest work in the coolest part of the day.
- h. Wear light, loose fitting, breathable (like cotton) clothing.
- i. Use of drugs including therapeutic ones and alcohol in hot work environments is prohibited.
- j. Avoid using caffeine and alcoholic beverages while working in hot environments. These beverages make the body lose water and increase the risk for heat illnesses.
- k. Alternate work and rest periods.
- l. Take frequent short breaks in cool areas to allow your body to cool down.

### **Combustible / harmful material**

The Objective is to eliminate fuel sources for fire outbreaks.

To ensure that the objective is realised:

- a. Documents and combustible materials should be stowed away in appropriate containers that do not expose them to fire hazards; and
- b. Heads of Installations and offices should ensure that desks and work surfaces are kept clean and devoid of documents and combustible materials at all times unless such material is being used for work.

### **Microorganisms**

The Objective is to:

- a. Improve the knowledge of staff about how microorganisms cause disease;
- b. Ensure that all installations/offices have policies that seek to control spread in the event of an outbreak; and
- c. Installations and offices have the capacity to deal with an outbreak of disease from microorganisms.

To ensure that the objective is realised:

- a. All Installations and offices should document a microorganism's policy that should be read and signed by all personnel and the policy should be complied with by all visitors and contractors;
- b. All Installations and offices should create awareness on microorganisms and how to avoid contact through talk shows/seminars/workshops periodically;
- c. Medical screening should be encouraged for STDs and similar conditions;
- d. Good Housekeeping Policy;
- e. All Installations and offices should have contingency plans for dealing with microorganisms' disease outbreak; and
- f. Installations and offices should have an accredited organization that monitors and records the health status of all personnel.

### **Access /Egress restriction**

The Objective is to ensure that exit routes are adequate for emergency situations.

To ensure that the objective is realised:

- a. Provide emergency evacuation plan for all petroleum installations and office buildings; and
- b. Test the emergency evacuation plan at least once in a year and record the outcome and close out any action items that emerge.

### **Marine Environment**

The Objective is to:

- a. Eliminate or reduce to as low as reasonably practicable (ALARP) incidents caused by personnel; and
- b. Continuously refresh personnel's knowledge and competencies on working in the marine environment if required.

To ensure that the objective is realised:

- a. Accredited agencies should certify all personnel to have adequate competencies to carry out proposed assignments in the marine environment.

### **Environmental & Social Assessments**

The objective is to ensure that environmental considerations are made a priority in all business planning and decision-making in order to comply with relevant national and international environmental protection regulations

To ensure that this objective is realised:

- a. Ensure that all developments and programmes adheres to the Environmental Assessment Regulations, LI 1652.
- b. Ensure systematic management of environmental impacts during project construction and operation.
- c. Create awareness among all employees on environmental management.

## **Sustainability and Socio-cultural threats**

The Objectives are to:

- a. ensure resources used for projects are sustainable;
- b. carbon footprints are traceable;
- c. waste management is not harmful to the environment
- d. Respect for socio-cultural values of neighbouring communities

To ensure that the objectives are realised:

- a. Programmes, projects and activities should have sustainability policies that determine how resources employed will be used sustainably;
- b. There should be carbon accounting programmes, projects and activities with the view to providing adequate mitigating measures to reduce emissions;
- c. Programmes, projects and activities should have waste management policies that demonstrate safe and approved disposal methods;
- d. Operators, Service providers and all persons involved in petroleum power related activities should have social responsible policies that seek to ensure that the socio-cultural activities of neighbouring communities will not be adversely affected by their activities.

## **Natural Resource Protection**

The objective is to protect natural resources of an environment.

To ensure that objective is realised:

- a. Protect and enhance the unique biological resources within the operational and other related areas.
- b. Perform site reviews for both state and community protected natural resources prior to initiation of work activities that has the potential to disturb natural species or their habitat whether native or man-made.
- c. Protect biological species on the site during the initial work activities and throughout the term of the project.
- d. Promote environmentally sustainable recreational use of protected lands.

- e. Continue to integrate biological resources management programs with other national resource management efforts.
- f. Build relationships and partnerships with other resource management agencies and non-government organizations.

### **Encroachment of Right- of-Way**

The Objective is to prevent encroachments on Right-Of-Way

To ensure that the objective is realised:

- a. All transmission, distribution lines and pipelines shall have right of way zones that shall be acquired by law as part of the power project installation.
- b. The right-of-way should be continuously monitored to prevent encroachment.
- c. The right-of-way should be continuously cleaned to prevent incidence of fire.

### **Ammunitions, Firearms & Other Weapons**

The Objective is to avoid planned harm to people in offices and installations.

To ensure that the objective is realised:

- a. To undertake physical search on people and inspection of hand bags or the use of hand or fixed scanners;
- b. Security providers should maintain high levels of technical and professional proficiency in maintaining safety and security at operating sites without causing human rights abuses; and
- c. Security Providers should act in a lawful manner consistent with applicable local and international guidelines regarding the use of force and firearms, (including the UN Principles on the Use of Force and Firearms by Law Enforcement Officials)

### **Security threats**

The Objective is to ensure that:

- a. All petroleum and power installations have a first line of security that protects it against threats from any form of external and internal

- aggressor;
- b. The first line of security feeds into a national security plan;
  - c. Both first line and national security plans are always current in terms of roles and responsibilities.
  - d. Respect for human rights
  - e. To ensure that the objectives are realised:
  - f. All petroleum and power installations should have a security emergency plan that addresses all foreseeable security threats;
  - g. Petroleum and power installations should ensure that their security plans are integrated into a national security plan provided by the responsible national apparatus (Petroleum Security Coordinating Centre);
  - h. All petroleum and power installations' security response plans should be tested at least once a year and also the communication with the national apparatus should be tested at least once a year;
  - i. Operators should incorporate Voluntary Principles on security and human rights into their policies to ensure that security is provided in a manner that respects human rights and international humanitarian law;
  - j. Operators must conduct security and human rights risks assessment as part of their risk assessments and execute risk mitigation plans; and
  - k. Operators should train security service providers (both public and private security personnel) on Voluntary Principles to avoid human rights abuses on the host communities while maintaining safety and security at installations.

### **Medical Monitoring**

The objective is to ensure that the health and safety of workers complies with statutory requirements.

To ensure that the objective is realised:

- a. Evaluate the health status of potential employees, and determine whether they can perform the job in a safe and effective manner.
- b. Detect exposure-related adverse health effects at an early and hopefully reversible stage so that occupational diseases can be prevented, and proper medical care can be rendered, if necessary.
- c. Periodically assess employee suitability for ongoing or new

- assignments that involve potential contact with hazardous agents.
- d. Correlate past occupational or environmental exposures with future workplace activities and exposures, to arrive at an opinion on the risk that the job might represent to the health status of the individual.
  - e. Provide a medical monitoring program that complies with all the pertinent national regulations.
  - f. Identify unrecognized effects of exposure by continually evaluating group employee health data to detect possible adverse health trends.

### **Workplace HIV and AIDS Programme**

The objective is to:

- a. Contribute to the reduction in the number of new HIV infections at the workplace.
- b. Support initiatives to achieve national commitments on HIV & AIDS.

To ensure that the objective is realised:

- a. Operators must contribute to a reduction in HIV infections through enhanced prevention and focus on behaviour change among employees,
- b. Improve the quality of life for workers infected and affected by HIV and AIDS through care, support and treatment initiatives,
- c. Mitigate the socio-economic impact of HIV and AIDS on workplaces and surrounding communities

### **Poor housekeeping**

The Objective is to provide conducive environment for work.

To ensure that the objectives are realised:

- a. Installations and offices should have housekeeping policies that have been read and signed off by all staff to confirm acceptance and compliance; and
- b. There should be motivating schemes to recognise exemplary leadership qualities in tidiness/clean desk/clean office/clean utility rooms, etc.

## **Incident Reporting and Investigation**

The objective is to ensure that all relevant agencies, including the Ministry, are informed of all major incidents that cause lost time in productivity.

To ensure that the objective is realised:

- a. A notification shall be sent within twenty four (24) hours of occurrence and a full report detailing lessons learnt and measures put in place to avert recurrence shall be submitted to the relevant agencies not later than one (1) month after the occurrence of the incident.
- b. On receipt of the report, the Ministry shall compose a team of experts to investigate the incident and apprise management that the affected Installation or office has put in place adequate mitigating measures for activities to continue.
- c. In the event that the Ministry's team of experts identify issues, they shall be rated on a scale of "High risk", "Medium risk" and "Low risk" depending on the severity of their impacts.
- d. High-risk issues will need to be closed within three (3) months. Medium risk issues will be closed within six (6) months and Low risk issues will be closed within one (1) year.

## **Applying the Policies**

The above mentioned hazards must be addressed in all programmes, projects and activities undertaken in the energy sector.

In addressing the hazards, it is recommended that a register is created and the locations of all the hazards indicated in the register. SOPs that will pertain to the locations should mention the hazards and the mitigating measures used in compliance with the policy directions indicated.