

Health, Safety, Security and Environmental Requirements for the Exploration and Exploitation of Petroleum

THE EGYPTIAN CASE

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Introduction

The environmental impact of petroleum is often negative because it is toxic to almost all forms of life. The possibility of climate change exists. Petroleum, commonly referred to as oil, is closely linked to virtually all aspects of present society, especially for transportation and heating for both homes and for commercial activities.

Oil is transported in the shipping lanes bordering Egypt's coastline in vast quantities. Much of the world's trade in oil is centred on the Middle East, which produces about one quarter of the oil transported globally. Up to 117 million tonnes of crude oil per annum are shipped through the Gulf of Suez to the Sumed terminal at Ain Sukhna and the vast majority of this cargo is trans-shipped to the ultimate customers in the West from the Mediterranean terminal at Sidi Kerir. In addition, about 36 million tonnes of petroleum products are transported annually through the Suez.

Furthermore, about 85% of Egypt's production of oil and gas is located in coastal waters. The production facilities in the Gulf of Suez produce 36 million tonnes of oil and gas annually. Offshore production in the Mediterranean is becoming an increasingly important activity.⁽¹⁾

The National Oil Spill Contingency Plan (NOSCP) established the national framework for preparing for and responding to oil spills in Egyptian marine waters. The objective is to provide the basis for more efficient oil spill response operations under the overall authority of the Egyptian Environmental Affairs Agency (EEAA).

In particular, the NOSCP provides the legal basis for implementing the Government of Egypt's obligations under the Oil Pollution Preparedness, Response and Co-operation Convention, 1990 (OPRC). It also implements the

⁽¹⁾ http://www.persga.org/Files/Publications/planning/Egypt_Oil_Contingency_Plan.pdf, p.11

Government's obligations under the regional Barcelona and Jeddah Conventions for the protection of the Mediterranean Sea and Red Sea respectively. The NOSCP also implements, in part, ECAA's obligation to prepare an Environmental Disasters Contingency Plan, as required by Article 25 of Law No. 4 of 1994.⁽²⁾

The Jebel al Zayt oil spill occurred north of the Red Sea on June 16, 2010. It is considered to be the largest offshore spill in Egyptian history. The spill polluted around 100 miles (160 km) of coastline including tourist beach resorts⁽³⁾. Oil company officials in the port city of Suez said the spill was caused by a leak from an offshore oil platform in Jebel al-Zayt north of Hurghada owned by the Egyptian government's state-owned oil company, Geisum Oil.⁽⁴⁾

The oil spill occurred in Egypt, north of the Red Sea. It polluted several tourist areas along the coastline of the Red Sea. The spill damaged areas that are home to popular diving sites with extensive underwater coral reefs. A number of beaches and resorts along the coast were affected greatly. Marine life in the Hurghada area was at risk of heavy damage but it was later discovered that there was very little damage to the marine life. Scientists believe that the environmental damage was limited due to strong currents and winds that pushed the oil quickly away from the underwater coral reefs, and towards the shoreline of Hurghada. The affected areas have rich biodiversity that has a fragile ecosystem. Although it was unaffected environmentalist are still worried about disasters in the future and the potential danger it could inflict to the marine life.⁽⁵⁾

PREVIOUS SPILLS⁽⁶⁾



⁽²⁾ Ibid.

⁽³⁾ http://en.wikipedia.org/wiki/Jebel_al-Zayt_oil_spill#cite_note-bloom-2

⁽⁴⁾ Galal, Ola; Williams, Daniel (22 June 2010). "Egypt Probes Source of Red Sea Resort Oil Spill, May Limit Rigs". Bloomberg. Retrieved 14 August 2013.

⁽⁵⁾ Jensen, Jon (16 July 2010). "Red Sea: the other oil spill". Globalpost. Retrieved 14 August 2013.

⁽⁶⁾ [http://www.rempec.org/country.asp?cid=6&IDS=2_11&daNme=Risk assesment&openNum=1#2](http://www.rempec.org/country.asp?cid=6&IDS=2_11&daNme=Risk%20assessment&openNum=1#2)

Date	Place	Type	Amount
04/02/2005	Unknown	Crude Oil	1500
21/11/2004	Off North Coast	Crude oil	0
06/05/2000	Abo-Qir, 6km from Alexandria	Packaged Nitric Acid	322
14/04/1992	Sidi Kerir	Iranian Light	200
30/03/1989	Sidi Kerir	Fuel oil unspecified	300
31/05/1987	Sidi Kerir Terminal	Fuel Oil unspecified	60

This paper intends to explore the health, safety, security and environmental requirements for the companies operating in the field of exploration and exploitation of oil and gas under Egyptian law.

Review

For the purpose of this paper we have examined:

Law No.12 of 2003 promulgating the labour law (the “Labour law”) ⁽⁷⁾;

Law No. 4 of 1994 promulgating the law on environment (the “Environmental law”) ⁽⁸⁾;

Law No. 66 of 1953 ⁽⁹⁾;

⁽⁷⁾ Official Gazette, issue no. 14, 7/4/2003.

⁽⁸⁾ Official Gazette, issue no. 5, 3/2/1994.

⁽⁹⁾ Official Gazette, issue no. 16, 19/2/1953.

Law No. 86 of 1956⁽¹⁰⁾ promulgating the law on mines and quarries (the “Mines and Quarries law”),

Decree 758 of 1972, Executive Regulations of law 66/1953 Concerning Mines and Quarries⁽¹¹⁾; and

Egypt National Oil Spill Contingency Plan⁽¹²⁾.

It is to be noted that the Egyptian General Petroleum Corporation (“EGPC”) did not issue any formal mandatory Health, Safety & Environmental Procedures Manual to be followed by the companies operating in oil extraction (the “Contractor”). We have reviewed certain informal guidelines recommended by EGPC (“EGPC Guidelines”). EGPC is the “competent administrative agency” designated under Law No. 4 (Article 1, paragraph 38) concerning protection of the environment from pollution by the Contractor. We have incorporated in this paper what we believe would constitute standards of reasonable and prudent operatorship.

Structure

This paper covers the following topics:

1. Standards of Performance for Petroleum Activity.
2. Standards of Equipment, Materials and Supplies.
3. Health and Safety.
4. Environment and Pollution.
5. Accident Investigation and Reporting.
6. Sanctions.
7. Statutory Liability.
8. Conclusion

1.0 Standards of Performance for Petroleum Activity

⁽¹⁰⁾ Official Gazette, issue no. 22, 15/3/1956.

⁽¹¹⁾ Official Gazette, issue no. 233, 9/10/1972.

⁽¹²⁾ http://www.persga.org/Files//Publications/planning/Egypt_Oil_Contingency_Plan.pdf

1.1 Article 56 of the Executive Regulations of the Mines and Quarries law stipulates that:

1. No smoking shall be allowed on the drilling tower or within the limits of the 25 meters from the well or from the equipment separating oil form gas or from the crude oil tanks or any source which is open to inflammable fumes. Uncovered heaters or electrical equipment shall not be used within that specified distance. Exhaust pipes for internal incineration machines placed within said specified distance must be isolated or cooled to an adequate degree to prevent any combustion of any flammable material. Visible signs with big letters shall be put up to warn from smoking or using uncovered lights or a flammable source.
2. All precautions shall be taken to prevent the occurrence of accidents to those executing the works and others especially accidents resulting from movable parts attached to the machines in use. Workers shall be provided with means of protection such as metal helmets, gloves, appropriate footwear and clothing. The tower worker shall be provided with an appropriate safety belt.
3. Workers shall not be kept in the workplace for more than eight hours per day, except in cases of emergency or by virtue of a special permit to prevent the occurrence of accidents or danger or to repair the aftermath of such accident or danger. Only workers, assigned employees and persons authorized by the competent administrative authority are authorized access to the workplace. Workers are not authorized to enter the workplace and its annexes during non-working hours unless specifically authorized.
4. The Contractor shall maintain adequate firefighting equipment such as water, steam and foam pipes or any equivalent equipment in suitable places near the pooling stations, tanks, offices, residencies or workshops. The Contractor must provide a fire fighting station and patrol unit in each petroleum area. The patrol unit must be under the supervision of a responsible person, whose name must be notified to the competent authority and to the competent police station. Such unit must perform at least monthly maneuvers. The station must maintain a suitable fire fighting

vehicle equipped with adequate pumps and firefighting equipment and must be illustrated at night with a red light.

5. The Contractor must place in an apparent place on sites, workshops and buildings a statement illustrating the fire fighting systems and the related instructions. A copy of such statement must be forwarded to the competent authority for approval.
6. The Contractor shall notify EGPC or its delegates on site as well as the police immediately upon the occurrence of a fire in petroleum wells, tanks or elsewhere either directly owned or operated by it or under its control or occurring in nearby establishments as well as notifying nearby concessionaires or their agents and requesting their assistance.⁽¹³⁾

1.2 Excavation / Trenching / Shoring⁽¹⁴⁾

Excavation is an essential element of the construction process particularly in relation to the construction of foundations, drainage work and site works of all kinds. In carrying out an excavation, the soil conditions can vary widely, often in short distances. No soil, whatever its nature, can be relied upon to support its own weight for any length of time.

Before any excavation actually begins, it is required that:

1- the employer to determine the estimated location of utility installations: sewer, telephone, fuel, electric, water lines or any other underground installations that may be encountered during digging:

2- no employee should operate a piece of equipment without first being properly trained to handle it and fully alerted to its potential hazards;

⁽¹³⁾ Article 56 of the Executive Regulations of the Mines and Quarries law.

⁽¹⁴⁾ EGPC Guidelines.

3- the competent person must inspect, on a daily basis, excavations and the adjacent areas for possible cave-ins, failures of protective systems and equipment, hazardous atmospheres, or other hazardous conditions;

4- adequate protective systems shall be utilized to protect employees.

5- no employee shall work in an excavation where water is accumulating unless adequate measures are used to protect the employees;

6- excavations and trenches shall be inspected daily, prior to employee exposure or entry, and after any rainfall, soil change, or any other time needed during the shift; and

7- if work is in or around traffic, employees must be supplied with and wear orange reflective vests. Signs and barricades must be utilized to ensure the safety of employees, vehicular traffic and pedestrians.

2.0 Standards of Equipment, Materials and Supplies

All machines and equipment used in the operations shall be in good condition and fulfilling all requirements necessary to guarantee their proper use and shall be of adequate capacity for the work it designated for.⁽¹⁵⁾

The flooring and all parts of the drilling tower shall be constructed by materials capable of bearing the maximum weights they might be exposed to and shall be maintained and preserved in good condition. The hoist and keys of the drilling and production pipes and of the caissons shall be maintained in good conditions and shall be tested periodically and placed in a suitable position and the keys shall be fitted with the necessary safety locks.⁽¹⁶⁾

⁽¹⁵⁾ Article 56 of the Executive Regulations of the Mines and Quarries law.

⁽¹⁶⁾ Ibid.

Covering pipes and materials placed on the well to control any surprise explosion of water, oil or gas during the drilling or testing operations or upon completion or repairing the wells shall be maintained and monitored.⁽¹⁷⁾

The explosion prevention valves shall be suitable for the depth to be drilled, the expected pressures, for incidents of closing down the well, for the drilling and production pipes or any material to be used inside the well.⁽¹⁸⁾

EGPC Guidelines recommend Contractors to:

1- put in place systems for the operation of abrasive wheel machinery. This shall include training and appointment of persons to mount wheels. Manuals for selection of wheels, abrasive wheel characteristics, abrasive wheel marking systems, securing the wheels, starting new wheels, guards and personal protection shall also be in place. Eye protection, head protection, foot protection, hearing protection and work clothes shall also be included in the manuals⁽¹⁹⁾;

2- to put in place systems identifying the nature and types of asbestos, biophysics of asbestos and the disease caused by it as well as setting out hygiene control limits. asbestos products and factors affecting dust emission levels on site shall also be included as well as principles of protection and precautions. Provisions for control of asbestos dust, precautions when using asbestos and enclosures or sealing, respiratory protection, protective clothing, personnel hygiene and decontamination, cleanliness and containment of waste, using of asbestos in open area works, air monitoring, training and supervision as well as inspection, maintenance and records shall also be included⁽²⁰⁾ ;

3- put in place procedures relating to pre- opening of flanged joint for the installation of blinds, as well as dealing with the opening of any flanged joint for the installation of blinds⁽²¹⁾; and

⁽¹⁷⁾ Ibid.

⁽¹⁸⁾ Article 56 of the Executive Regulations of the Mines and Quarries law.

⁽¹⁹⁾ EGPC Guidelines.

⁽²⁰⁾ EGPC Guidelines.

⁽²¹⁾ Ibid..

4- assure that combustible and flammable liquids shall be stored in a manner that complies with the codes and practices internationally known. The same shall apply to handling requirements⁽²²⁾.

3.0 Health and Safety

3.1 Medical Aid and Safety of Workers⁽²³⁾

Companies shall prepare and maintain permanently and at no cost all medical equipment necessary to aid workers injured on site. Such equipment shall be maintained at a designated place on site, whether it is a well, pumping station or any location where five or more workers assemble simultaneously.

Any area in which fifty or more workers are active must be provided with a nearby designated place containing at least one room equipped with the necessary first aid and emergency equipment. The places allocated for medical treatment shall be sufficient to treat at least three percent of the workers on site.

Employees shall receive training covering the following emergency measures: (i) control of bleeding, (ii) administering artificial respiration, (iii) treatment of poisons, (iv) treatment for shock, (v) treatment of heat exhaustion, (vi) treatment of heat stroke, (vii) treatment of burns, (viii) treatment of snake bite, (ix) treatment of fractures and dislocations and (x) transportation of the injured.

The Contractor shall place in a visible location an Arabic sign containing the work regulations as well as the general safety instructions and shall provide to the workers at no cost the necessary safety clothing and articles and shall not assign the workers for any work without them wearing the appropriate safety clothing.

The Contractor shall do what is necessary to regulate the ventilation and temperature whether naturally or artificially.

3.2 Ensuring Workplace Environment

⁽²²⁾ Ibid.

⁽²³⁾ Article 56 of the Executive Regulations of the Mines and Quarries law.

Pursuant to the Labour law, any establishment and its branches are under an obligation to provide health and safety measures to its employees and to secure the workplace environment.⁽²⁴⁾

Specific attention is provided to protection from the following:

a) physical risks including heat intensity and chilliness, noise and vibrations, lighting, harmful and dangerous radiation, atmospheric pressure changes, static and dynamic electricity and explosion risks;⁽²⁵⁾

(b) mechanical risks including any risk arising from work tools, construction and digging works and risks of collapse and downfall;⁽²⁶⁾

(c) biological risks including risks of infection with bacteria, viruses, fungus and parasites⁽²⁷⁾; and

(d) chemical risks arising from dealings with solid, liquid or gaseous chemical substances⁽²⁸⁾.

The establishment and its branches shall provide means of rescue, first aid, cleaning and organization of the workplace as well as ensuring that workers in kitchens and restaurants carry health certificates indicating they are free of epidemic and contagious diseases.⁽²⁹⁾

Safety conditions and danger prevention precautions referred to above are included in minister of manpower and labour decree no. 211 of 2003.

The establishment and its branches shall take the necessary fire prevention precautions in compliance with the instructions of the competent authority at the ministry of interior, depending on the nature of the establishment's activity and the characteristics of the physical and chemical substances used and produced.⁽³⁰⁾

⁽²⁴⁾ Labour law, Article 208.

⁽²⁵⁾ Labour law, Article 208.

⁽²⁶⁾ Labour law, Article 209.

⁽²⁷⁾ Labour law, Article 210.

⁽²⁸⁾ Labour law, Article 211.

⁽²⁹⁾ Labour law, Article 212.

⁽³⁰⁾ Labour law, Article 214.

All fire-fighting equipment shall conform to Egyptian standards and the establishment shall develop the fire-fighting and protection equipment by using the most up to date techniques and providing alarm systems, early warning systems, preventive isolations and automatic preventive extinguishing systems as necessary and depending on the nature and activity of the establishment.⁽³¹⁾

The establishment and its branches shall carry out an industrial and natural risk and disaster evaluation and analysis and prepare an emergency plan to protect the establishment and the workers upon the occurrence of a disaster. The effectiveness of such plan must be tested and practical measures must be undertaken to ascertain its efficiency and train the workers to face its requirements.

The establishment shall notify the competent authority of the emergency plan as well as any amendment thereto. It shall also notify the competent authority of any storage or use of dangerous materials.⁽³²⁾

3.3 Social and Health Services

Without prejudice to the provisions of the social insurance law, the establishment shall undertake a medical examination on the workers prior to joining the work to ascertain their fitness for the work to be assigned to them, as well as ascertaining their physical, mental and psychological abilities.⁽³³⁾

Such examinations shall be carried out in accordance with the health insurance regulations. The levels of fitness, mental and psychological abilities on the basis of which such examinations are carried out shall be determined by ministerial decree.⁽³⁴⁾

⁽³¹⁾ Labour law, Article 214.

⁽³²⁾ Labour law, Article 215.

⁽³³⁾ Labour law, Article 216.

⁽³⁴⁾ Labour law, Article 216.

The establishment and its branches shall train the workers on the sound basis of performing their duties, educate them on the dangers of their work, and oblige them to use the necessary means of protection, provide them at no cost with the personal protection tools as well as training them on how to use such tools.⁽³⁵⁾

Without prejudice to any law in this respect, the workers are under an obligation to use the protection means, to maintain the articles in their possession and to implement the safety and protection instructions designed to protect them from work accidents. They shall not commit any act aimed at preventing the implementation of the instructions or abuse, alter or damage the means placed for the safety and protection of their fellow workers.⁽³⁶⁾

The establishment and its branches shall undertake daily periodical inspections on the work sites during each shift to identify any risks and work on the protection there from.

The establishment's physician shall examine any worker's complaint and determine its connection with the work. The establishment shall coordinate with the health insurance authority to undertake periodical physical examinations on all workers to maintain their fitness and detect any vocational diseases as well as undertaking medical examination at the end of service⁽³⁷⁾.

The establishment shall provide first aid means for its workers. If the number of workers exceeds fifty in one place, one town or within a circle with a radius of fifteen kilometres, the establishment shall employ one or more qualified nurse during each shift and assign a physician to inspect the workers at the designated location and provide them with the necessary medications.⁽³⁸⁾

⁽³⁵⁾ Labour law, Article 217.

⁽³⁶⁾ Labour law, Article 218.

⁽³⁷⁾ Labour law, Article 219.

⁽³⁸⁾ Labour law, Article 220.

If a worker is treated at a hospital, the establishment shall pay the hospital's fees, accommodation and medications.⁽³⁹⁾

Workers in remote areas shall be provided with adequate means of transportation, suitable nutrition, and proper accommodation (putting into consideration married couples).⁽⁴⁰⁾

3.4 Health, Safety and Workplace Security Inspection and Regulation Agencies **(41)**

The health, safety and workplace security inspection agency personnel are entitled to undertake medical and laboratory examinations on the workers to ascertain work conditions. They may take and analyze samples of the substances used in industrial operations which might have a negative effect on the workers health or the workplace environment and identify the dangers arising out of its use and notify the establishment of the results. They may use equipment and cameras to analyze the causes of accidents, review the establishment emergency and risk analysis plan as well as the technical and administrative reports relating to major accidents and their causes. They may also review the quantities of dangerous materials causing threat to the establishment.

In case of possible threat to the establishment or to the workers health or to the security of the workplace environment and based on the report of the health, safety and workplace security inspection agency, the competent authority may order the complete or partial closure of the establishment or the suspension of one or more machines until the threat is removed.

3.5 Regulation of Health, Safety and Security of Workplace Environment

⁽³⁹⁾ Labour law, Article 220.

⁽⁴⁰⁾ Labour law, Article 221.

⁽⁴¹⁾ Labour law, Article 225.

Oil and gas companies employing more than fifty employees are required to establish a department to manage the health, safety and security of the workplace environment as well as a committee to overview health and safety measures. The committees shall study the work conditions and the causes of accidents and professional injuries and set up the rules and precautions for their prevention. Personnel working in the departments, committees and personnel in charge of management and production shall be given adequate training in accordance with their responsibilities and nature of work.⁽⁴²⁾ The composition, competencies and obligations of such departments and committees as well the training requirements are included in ministry of manpower and labour decree no. 134 of 2003.

Any industrial establishment employing fifteen workers or more and any non-industrial establishment employing fifty workers or more shall provide the competent labour authority with a semi annual statistical statement of the diseases and injuries during the first half of July and January of each year. The establishment shall notify said labour authority of any major accident occurring in the establishment within twenty four hours of its occurrence.⁽⁴³⁾

3.5.1 Bulletin Boards, Posters and Safety Displays⁽⁴⁴⁾

Posters and safety displays are recommended to stimulate and maintain interest in safety. Companies shall set standard for types, sizes, content and forms of posters. Setting standards for the locations and the construction of bulletin boards and safety score boards is also recommended.

3.5.2 Compressed Air Use and Storage⁽⁴⁵⁾

Compressed air is occasionally used throughout the oil and gas industry as a method of cleaning. However, it is potentially dangerous and must be treated with due care and respect. It is recommended to put in place a “compressed air

⁽⁴²⁾ Labour law, Article 227.

⁽⁴³⁾ Labour law, Article 228.

⁽⁴⁴⁾ EGPC Guidelines.

⁽⁴⁵⁾ EGPC Guidelines.

use and storage program” highlighting general practices relating to the use of compressed air.

3.5.3 Confined Space Program⁽⁴⁶⁾

Confined space entry programs shall be in line with the Occupational Safety and Health Administration (OSHA) Regulations 29CFR 1910.146. The purpose of this program is to ensure that proper protection is taken for all employees working in confined spaces.

3.5.4 Subcontractor Safety⁽⁴⁷⁾

As a matter of good practice, it is recommended that potential subcontractors be evaluated on the basis of HSE criteria in addition to technical and general competence to carry out the work at their tendered price. It is recommended to maintain a list of approved subcontractors that have gone through a pre-qualification procedure. Contractors shall prepare subcontractor safety handbooks that shall be attached to all agreements.

For certain high risk activities (e.g. steel erection, cladding, demolition, industrial painting, work with asbestos, major lifts, work in confined spaces, etc.) it is advisable that the relevant bidding subcontractor provides a written method statement. This should detail, the personnel designated to do the work together with their training/experience, a description of each stage of the work, the access and other equipment to be used (including personal protective equipment) and, where appropriate, plans and drawings should also be provided.

Pre-inspection of statutory records of lifting appliances before subcontractors are allowed on site to carry out lifting operations, together with proof of the adequate training and experience of drivers of cranes and lifting appliances are advisable.

⁽⁴⁶⁾ Ibid.

⁽⁴⁷⁾ Ibid.

Once on site, Contractors shall be responsible for the acts of subcontractor personnel with respect to violations of HSE rules and failure to adhere to safety responsibilities and duties.

Regular inspections by site management/supervision and resident safety officers of operations and monitoring compliance with HSE protocols are advisable. Subcontractors shall report all lost-time accidents, cases of ill health and dangerous occurrences to site management and/or the resident safety officer.

In any case of poor safety performance and failure to respond to site safety directives, safety officers should raise a subcontractor adverse safety report.

4.0 Environment and Pollution

4.1 Waste Management

4.1.1 Wastes from oil containers and wells ⁽⁴⁸⁾

The Contractor shall prepare pits or tanks to receive the wastes of oil containers and wells in a suitable safe location away from the wells or the buildings. In no event may such wastes flow over ground or be disposed of on sea shores, public roads or wet land.

4.1.2 Non-pollution of sea water ⁽⁴⁹⁾

The Contractor shall abide by the following rules regulating the disposal of oil wastes, wells waters and all other material and substances resulting from oil and gas drilling, production or transportation operations:

⁽⁴⁸⁾ Article 60 of the Executive Regulations of the Mines and Quarries law.

⁽⁴⁹⁾ Article 61 of the Executive Regulations of the Mines and Quarries law.

- Crude oil, oil wastes and mixtures, water or any oil-containing mixtures shall be collected and disposed of within the exploitation area by burning or through any other operation to prevent any pollution hazards. Discharge or flow of any oil liquids on the ground as well as transporting it to any water course or lake is prohibited;

- Onshore and offshore wells shall be supplied with an impermeable base or another method for collecting oil leaking from the well;

- Drilling containers whether for repair or drilling operations shall be fitted at the end of the line openings or the valves with a method preventing any oil or oil mixture from leaking in the water. Such method shall be set up in a way suitable for modifying it in accordance with changes in water surface in tide and ebb conditions. Any oil leaking from such openings shall be collected and disposed of according to the above.;

- Containers containing drilling, repair or power units shall be fitted with oil catchers or another method in order to move oil and oil liquids into the tank designated to collect leaking oil. Adequate precaution must be taken to avoid losing any oil during repair operations;

- All storing tanks and tanks separating oil from water adjacent to the well and pooling stations and similar equipment set up over water, lakes or swamps and which are practically impossible to be surrounded with walls to protect them against fires shall have impermeable bases surrounded with a steel spout leading to a basin for catching leaking oil and water. Any other approved method may be applied;

- Regular periodic inspection and examination of all pooling lines or any lines used for transporting oil shall be carried out. In case of any leakage, such lines must be immediately repaired and oil leaked must be collected;

- All containers used for transporting crude oil or its products must be in a good condition, any container facing oil leakage must be repaired prior to operation. Oil shipping must be carefully conducted to avoid the leaking of oil from shipping platforms and harbours, ends of shipping lines or tankers loading

points. Following each supply operation of a container or a tanker, oil remaining in the shipping hose or any other connection shall be disposed of;

- Oilfields salt water shall not be disposed of in any water course, lake, lowland or draining canal leading to a water course or a lake, if the competent authority determines that the taste of the fresh water will be effected or if such disposal is considered harmful to public health or to any industrial or legal entity, or would have a harmful effect on agriculture, fish, animals or plants. However, oil-free salt water may be disposed of after its reduction to the levels determined for each water course or field. In the events where oilfields salt water may be disposed of through injection in disposal wells, this shall be undertaken by injecting the water in layers below the levels of fresh water. Such disposal wells shall be covered with caissons fixed with cement and fitted to not cause any pollution to the fresh water layers; and

- Disposal in disposal wells may not be compulsory, if the competent authority determines that disposal of sea water in neighbouring water bodies will not cause harmful results, due to high salt levels.⁽⁵⁰⁾

4.2 Protecting the Land Environment from Pollution

4.2.1 Environmental Impact Statement & Assessment

Companies operating in the fields of oil exploration, extraction, refining, storage and transportation, power generating facilities, mines and quarries, infrastructure projects and any other projects which are likely to produce an impact on the environment shall obtain environmental approval as part of the

⁽⁵⁰⁾ Article 62 of the Executive Regulations of the Mines and Quarries law.

licensing procedures from the concerned administrative authority to conduct activities which might impact the environment.⁽⁵¹⁾

Such companies are required to submit an environmental impact statement. The concerned administrative authority will assess the possible environmental impacts of the activities of the company. The company has the right to object to the assessment in writing within 30 days and the matter will be settled by a verification committee on which the objecting company shall have a seat.⁽⁵²⁾

The company is under an obligation to maintain a record of the environmental impacts of its activity and shall notify the competent authority of any deviation in the criteria and specifications of emitted pollutants and the procedures taken to rectify it. The concerned administrative authority shall monitor the company's environmental record and assess the compliance with the environmental requirements and if it discovers a violation it will notify the company to rectify the non-compliance and the failure to do so within 60 days from receipt of the notice may subject the company to closure, suspension of its activities or legal proceedings for compensation.⁽⁵³⁾

4.2.2 Dangerous Petroleum Materials and Wastes

The handling of dangerous petroleum materials and wastes as well as treatment of dangerous petroleum wastes are prohibited without a license issued by the ministry of petroleum. The term of any such license may not exceed five years.⁽⁵⁴⁾

Importation of dangerous petroleum wastes as well as its entry or transit through the territories of the Arab Republic of Egypt is prohibited. The transit of vessels carrying dangerous wastes through the territorial waters or the exclusive

⁽⁵¹⁾ Environmental law, Article 19.

⁽⁵²⁾ Environmental law, Article 21.

⁽⁵³⁾ Environmental law, Article 22.

⁽⁵⁴⁾ Environmental law, Articles 29 & 31.

economic zone of the Arab Republic of Egypt is prohibited without license from the competent administrative authority.⁽⁵⁵⁾

4.2.3 Generating dangerous wastes⁽⁵⁶⁾

Companies and establishments generating dangerous materials shall work on reducing the quantity and quality level of generating such material by seeking new and clean technologies and seek alternative products and primary materials less harmful for the environment and public health as well as describing and recording the quantity and quality of the generated wastes. Subject to the Egyptian Environmental Affairs Agency's approval of the treatment methods, technical specification and operating programmes, such companies shall establish and operate waste treatment units at source. In case treatment and disposal of dangerous wastes is difficult to perform at source, the entity generating such wastes shall collect and transport it to the designated disposal locations determined by the relevant local authorities and the concerned environmental and administrative authorities.

4.2.4 Collecting and storing dangerous wastes⁽⁵⁷⁾

Dangerous materials shall be stored in designated safe locations designed to prevent the occurrence of any harm to the public or to people exposed to it and shall be stored in special solid containers, free of any holes to prevent any leakage, and equipped with an hermetic cover or in accordance with the norms of storing such wastes depending on the type. Such containers shall be marked with a sign identifying its contents and the dangers resulting there from and shall be cleaned after each use and shall not be placed in public places. A time schedule

⁽⁵⁵⁾ Environmental law, Article 32.

⁽⁵⁶⁾ Article 28 of the Executive Regulations of the Environmental law.

⁽⁵⁷⁾ Ibid.

for collecting the dangerous wastes shall be put in place so that such materials are not left in the storing containers for long periods.

4.2.5 Transporting dangerous wastes⁽⁵⁸⁾

Transportation of such material must be conducted only by the parties licensed to handle the material, and only in suitable, safe, clearly marked means of transport operated by trained drivers. A sign must be put up on such vehicles identifying the dangers of its cargo and the most suitable way to act in cases of emergency. Routes and timing of transport of such materials must be notified to the civil defence authorities, and transportation is prohibited through residential or urban areas. Transport by ship requires prior authorization, which may not be granted if any pollution to the environment is likely to occur.

4.2.6 Treating and disposing of dangerous wastes⁽⁵⁹⁾

Dangerous wastes treatment and disposal sites shall be located not less than three kilometres from any residential or urban community. Special conditions and requirement for treatment sites, including proportional adequacy of the size of the site to the quantity of such materials, enclosure of the treatment site, adequate access and outlet, adequate water supply, occupational health protection, communications, adequate equipment, adequate and safe storage area, incineration capacity, marking equipment, and dedicated areas for waste burial must be observed.

Entities producing or handling dangerous materials, whether in gaseous, liquid or solid forms shall take all necessary precautions to ensure the non-occurrence of any damage to the environment. They shall maintain a register of

⁽⁵⁸⁾ Article 28 of the Executive Regulations of the Environmental law.

⁽⁵⁹⁾ Ibid.

such wastes, the method of disposing thereof as well as the entities receiving it.⁽⁶⁰⁾

4.3 Protecting the Air Environment from Pollution

Establishments shall prevent any emission or leakage of air pollutants exceeding authorized levels stipulated in the law. The use of any machine, engine or vehicle producing exhaust levels beyond the levels stipulated in the law is not permitted.⁽⁶¹⁾

Discharging, treating or burning garbage or solid wastes is prohibited, except in designated areas, far from residential, industrial and agricultural areas or water courses.⁽⁶²⁾

Upon combustion of any type of fuel or other material, whether for industrial, power generation, construction or any other commercial purposes, the smoke, gas or noxious fumes resulting there from shall be within the permissible limits listed in the law. The entity in charge shall take all precautions to reduce the quantity of pollutants resulting from such combustion.⁽⁶³⁾

Entities carrying out exploration, digging, extraction, production, refining and processing of crude oil, petrochemicals and gas must comply with the procedures and measures provided for in the Environmental law and its executive regulation and which shall be derived from the basis and principles of the international oil industry provided for by EGPC such entities must:

1- take all necessary precautions for safe operation, clearing, storing, transporting and disposal of crude oil, petroleum, products, petrochemicals and gas and must abide by the measures and procedures derived from international oil industry principles provided by EGPC and to ensure the safe operation of the works with respect to clearing, storing and transportation of petroleum,

⁽⁶⁰⁾ Article 31 of the Executive Regulations of the Environmental law.

⁽⁶¹⁾ Environmental law, Article 36.

⁽⁶²⁾ Environmental law, Article 37.

⁽⁶³⁾ Environmental law, Article 40.

petrochemicals and gas as well as disposing of water and other materials and avoiding the loss of petroleum and gas;

2- take necessary precautions to avoid the outbreak of fires preserve the machines, wells, employees, residencies, warehouses and petroleum installations and protect the environment and the public; ⁽⁶⁴⁾

3- observe the conditions and requirements of dimensions and distances in using explosives whether in seismic survey operations or pipelines installations, provide the wells with the necessary materials, equipment and valves to prevent explosions and leakage of oil and gas and install the necessary separating equipment and flames for the production, transportation, operation and refining of petroleum products, petrochemicals and gas. They must undertake necessary precautions to prevent the leakage of oil and gas extracted during the digging operations tests and during the completion of wells as well as any other oil and gas that should be burned either in open pitches or in the flames. They shall use the ultimate number and size of nozzles, flames or use the sprinkling process or additional air or the diesel fuel to complete burning the heavy crude oil;

4- install the chimneys, flames and vents necessary for the production, operation, refining and storage process at the power stations belonging to the establishment, whether for the cold or hot emitted gas; and

5- set the necessary plans, prepare the machines and equipment and appoint and train the personnel to face any leakage or fire occurring to the wellheads, the flow lines, offshore or industrial installations, storage tanks, warehouses, residencies or any other similar installations within the limits of the establishment activity.

All material, equipment and machines used in the operations must be maintained in good conditions and in compliance with all proper use

⁽⁶⁴⁾ Environmental law, Article 41.

requirements, fit for its intended purposes and shall be maintained and inspected as necessary.

Contractors are under an obligation to dispose of any gas accompanying the oil, which cannot be exploited or safely used in accordance with international standards..⁽⁶⁵⁾

Radioactivity levels as well as air concentrates of radioactive substances shall not exceed the permissible levels.⁽⁶⁶⁾

4.4 Protecting the Marine Environment from Pollution

4.4.1 Pollution from Vessels

All vessels of whatever nationality are prohibited from disposing or throwing oil or oil mixtures in the territorial waters or exclusive economic zone of the Arab Republic of Egypt. Vessels registered in the Arab Republic of Egypt are prohibited from disposing or throwing oil or oil mixtures in the sea as provided for in the International Convention on Prevention of Marine Pollution by Vessels dated 1973/1978 (“the Convention”) and any other international treaty to which Egypt is a signatory.⁽⁶⁷⁾

National and foreign companies and organizations authorized to explore, extract or exploit offshore oil fields and other natural marine resources, including means of oil transportation are prohibited from discharging in the territorial waters or the exclusive economic zone of the Arab Republic of Egypt any polluting substance resulting from drilling and exploration activities, testing of wells or production. Such companies and organizations must use safe methods which do not result in damage to the marine environment and shall treat all discharged wastes and polluting substances in accordance with the available most up to date

⁽⁶⁵⁾ Article 43 of the Executive Regulations of the Environmental law.

⁽⁶⁶⁾ Article 49 of the Executive Regulations of the Environmental law.

⁽⁶⁷⁾ Environmental law, Articles 49 &50.

technical systems and pursuant to the conditions prescribed in international treaties. ⁽⁶⁸⁾

The owner of a vessel, its captain or any person in charge of it, the parties in charge of oil transport means located within Egyptian ports, territorial waters or the exclusive economic zone of the Arab Republic of Egypt as well as oil extraction companies shall notify the competent authority of any oil leakage incident immediately upon its occurrence. The notification shall identify the circumstances of the incident, the type of leaking substance and the procedures taken to stop or limit the leakage as well as other data provided for in the Convention. ⁽⁶⁹⁾

No vessel or tanker may be licensed to undertake shipping or unloading activities except after reverting to the competent authority to receive it and direct it to the designated places for disposal of wastes and impure balancing waters. ⁽⁷⁰⁾

Owners or captains of vessels registered in Egypt as well as vessels belonging to parties to the Convention shall maintain on board the vessel an oil register containing all oil related operations as provided for in the Convention and in particular shall record the loading or delivery of oil and specify the type of oil loaded or delivered , the disposal of oil or oil mixtures for the purpose of securing the vessel, its cargo or rescuing the persons on board and specify the type of oil disposed of, the leakage of oil or oil mixtures as a result of collision or accident and specify the percentage of oil and the volume of leakage, the discharge of impure balancing or tanks cleaning water, the disposal of polluted wastes as well as the disposal of oil containing waters gathered in the machines room outside the vessel during its presence in ports. ⁽⁷¹⁾

Oil or oil mixtures disposal operations taking place on offshore platforms shall be recorded in a similar register. Such register shall contain the name of the platform and its location, the platform license, the name of the platform owner, the activity of the platform, a statement of oil and oil mixtures treatment equipment and apparatus used prior to disposal of oil and oil mixtures as well as

⁽⁶⁸⁾ Environmental law, Article 52.

⁽⁶⁹⁾ Environmental law, Article 55.

⁽⁷⁰⁾ Environmental law, Article 56.

⁽⁷¹⁾ Environmental law, Article 58.

control and monitoring systems, quantity, type and levels of materials and liquids authorized to be disposed of annually, actual quantity of materials and liquids disposed, a statement of oil and oil mixtures treatment equipment and apparatus malfunctions, including the date of the malfunction, its duration and the result of the analysis following its repair as well as the name and signature of the person in charge of filling such data and the relevant dates. ⁽⁷²⁾

Subject to the provisions of the international convention on civil liability for damages arising out of oil pollution accidents, executed in Brussels in 1969 as amended, oil tankers registered in the Arab Republic of Egypt with total capacity of 2000 tons or more as well as other oil transport containers and equipment with total capacity of 150 tons or more, operating within the territorial waters or the exclusive economic zone of the Arab Republic of Egypt shall submit to the competent authority a financial guarantee in the form of an insurance, or any other guarantee. Such guarantee shall be presented upon the entry of the vessel into the Egyptian territorial waters and shall be valid and shall cover all damages to be determined by the competent authority. ⁽⁷³⁾

In the case a vessel is registered in a state party to the convention, the competent authority at that state shall issue such certificate.

4.4.2 Pollution with of Sanitary Wastes and Garbage⁽⁷⁴⁾

Vessels and offshore platforms are prohibited from discharging polluted sanitary water within the territorial waters or the exclusive economic zone of the Arab Republic of Egypt. Method of discharging is included in the law.

Vessels and offshore platforms carrying out exploration or exploitation of natural resources in the marine environment of the Arab Republic of Egypt as well as vessels using Egyptian ports are prohibited from throwing garbage or wastes in

⁽⁷²⁾ Article 52 of the Executive Regulations of the Environmental law.

⁽⁷³⁾ Environmental law, Article 59.

⁽⁷⁴⁾ Environmental law, Article 66.

the territorial waters or the exclusive economic zone of the Arab Republic of Egypt. Vessels shall deliver the garbage at the waste receiving facilities or at the places designated by the competent authority in return for a fee.

5.0 Accident Investigation and Reporting⁽⁷⁵⁾

Accidents must be investigated in order to reduce the likelihood of reoccurrence. This covers all types of accidents, including near misses and other minor occurrences. The accident investigation process helps investigators and HSE office compile facts.

Generally, an effective investigation shall cover:

- (i) a description of what happened,
- (ii) a determination of the real causes,
- (iii) a decision on the risks,
- (iv) a development of controls,
- (v) a definition of trends and
- (vi) a demonstration of concern.

5.1 Accident Investigation Flow Chart

In the event an injury, immediate care shall be given to the injured employee. The direct supervisor should attend to the injured employee to quickly to determine the extent of the injury and the potentially worst injury that might have occurred. The supervisor shall ensure that the injured is receiving appropriate medical attention.

⁽⁷⁵⁾ EGPC Guidelines.

If the accident involves a fatal injury or an environmental incident, contractor shall notify the appropriate governmental agencies. Standard operating procedures should set out the communication plans.

Generally, effective steps of investigations include:

- (i) responding to the emergency promptly and positively,
- (ii) collecting pertinent information about the accident,
- (iii) analyze all significant causes,
- (iv) developing and taking remedial actions,
- (v) reviewing findings and recommendations, and
- (vi) following through-on the effectiveness of the actions

Preliminary questioning of the injured assists in determining who should be a part of the investigation team and in obtaining a brief understanding from the injured as soon after the injury happened as is reasonably possible. Only the broad outlines of the event should be determined at this point. These will establish the expected framework in which a thorough investigation, if warranted, can be conducted.

The correctness of the statements should not be challenged. This can be sorted out on a later stage. No intimidating questions shall be asked.

Immediately following the accident, someone should be designated to study the scene with two objectives in mind (i) to be able to describe in great detail at the subsequent investigation meeting the facts of the workplace and (ii) to prevent the workplace from being disturbed, cleaned up, or altered if this is reasonably possible to accomplish.

5.2 Incident Reporting

The Contractor shall notify EGPC or its delegates on site as well as the police immediately upon the occurrence of a fire in petroleum wells, tanks or elsewhere

either directly owned or operated by it or under its control or occurring in nearby establishments as well as notifying nearby concessionaires or their agents and requesting their assistance.⁽⁷⁶⁾

An “Incident” is defined as an unexpected occurrence which interferes with the orderly progress of work and which caused, or might have caused (i) a serious injury or adverse effect on the health of one or more employees (ii) an actual or potential significant loss of physical facilities even though potential for injury was small

(iii) an environmental problem or a (iv) a situation which could have an unfavourable impact on the public.

As soon as possible after the Incident has occurred, it is the responsibility of the area or group supervisor most directly affected by the incident to convene an investigating committee to study the circumstances surrounding the event, and to prepare a report of their findings, including recommendations to prevent recurrence.

The investigating committee shall include the area or group supervisor, a member of the safety, industrial hygiene and fire protection section, and other personnel who can contribute to the investigation.

In addition, the committee should include one member from an area or group not involved with the incident. Comments from the employees directly involved in the incident are usually very important and the employees’ inputs should be included in the investigating committee’s findings.

The investigating committee should compile all the relevant facts at the scene of the Incident. If possible, the scene should not be changed until at least a preliminary investigation can take place. In addition to the reported facts, the committee should consider making a photographic record of the scene for future reference.

⁽⁷⁶⁾ Article 56 of the Executive Regulations of the Mines and Quarries law.

After the committee has completed investigation, the area or group supervisor or their designee will issue an Incident Report as soon as possible, setting out (i) the nature of Incident, (ii) a brief statement of what happened, (iii) a description of the Incident (iv) a detailed, essay-like and technically sound analysis of the circumstances leading up to the incident and a full description of what happened and (v) photographs and diagrams if they will contribute to an explanation of the incident.

The Incident Report shall include a listing of key facts brought out by the investigation, which are the basis for the corrective action recommended as well as a list of all recommendations of the committee, together with the designation of a specific individual who will be responsible for carrying out each recommendation. The timing for the corrective action must also be shown.

In situations in which disciplinary action is thought appropriate, this activity should be dealt with by the appropriate member of supervision, independent of and separate from the incident investigation.

Prior to final publication, a draft of the report should be sent to all committee members for their review and comments. The committee chairman is responsible for having the final draft approved by a level of management required to gain implementation of all recommendations, then typed and sent to the safety office for final review.

Each department should publicize the incident by sending copies of the report to all personnel they believe will profit by the information. If additional distribution is deemed necessary, it should be noted on the report.

5.3 Record Keeping

Only when a company compares its injury experience with that of similar companies and with that of the industry of which it is a part, or with its own previous experience, can it obtain a meaningful evaluation of its safety accomplishments.

6.0 Sanctions

6.1 Labour law sanctions

Article 256 states that:

“Any violation of the provisions of the Labour law on providing vocational health, safety and securing the workplace environment and the decrees issued for its enforcement would subject the offender to imprisonment for a period of not less than three months and to a fine of not less than one thousand pounds and not exceeding ten thousand pounds, or either penalties.

Both imprisonment and fines shall be mandatory in case the crime results in death or grave injury. The fine shall be doubled in case of recurrence.

If the crime has occurred as a result of the convict’s breach of his obligations under the Labour law, the employer or his delegated representative shall be jointly responsible with the convict for the settlement of the financial penalties.”

Failure by the company to implement the provisions provided for in Articles 208 – 215 of the Labour law and the decrees enforcing it within the time limits specified by the competent authority and in case of the existence of danger to the health or safety of the workers, the competent authority may order the complete or partial closure of the company or the suspension of one or more machines until the lapse of the causes of danger.⁽⁷⁷⁾

The decree issued for closure or suspension of the company shall be enforced by administrative means without prejudice to the workers entitlement to their full salary during the closing down or suspension period. The competent

⁽⁷⁷⁾ Labour law, Article 215.

administrative authority may remove the causes of danger by direct enforcement at the company's expense. ⁽⁷⁸⁾

6.2 Environmental law sanctions

The sanctions prescribed in the Environmental law does not apply on pollution incidents resulting from securing the vessel or the persons onboard, unloading resulting from damage to the vessel or its equipment, provided it was not intentionally or negligently undertaken by the vessel captain or the person in charge and provided such persons have taken all adequate measures prior to and after the incident to stop or reduce the pollution and have immediately notified the competent authority.

In any event, the foregoing does not prejudice the competent authority's right to claim from the party causing the damage the costs pertaining to removing the effects resulting from the pollution and for compensation for damages resulting there from.

However, if the damage caused to the vessel or its equipment that resulted in the unloading was intended to disable or damage the vessel or was a result of negligence the perpetrator would be subjected to imprisonment and to a fine not less than LE150,000 and not exceeding 500,000. In case of recurrence the fine shall be increased. ⁽⁷⁹⁾

Failure to take all adequate measures prior to and after the incident to stop or reduce the pollution and failure to immediately notify the competent authority would subject the perpetrator to a fine not less than LE 70,000 and not exceeding LE 300,000. In case of recurrence the penalty shall be imprisonment and a fine not less than LE 300,000 and not exceeding LE 500,000.

⁽⁷⁸⁾ Ibid.

⁽⁷⁹⁾ Environmental law, Article 91.

The sanctions do not apply in case of a sudden break in a pipeline carrying oil or oil mixtures during operation, drilling, exploration or wells testing, provided no negligence occurred in monitoring or maintaining the pipelines and provided immediate adequate measures were taken to monitor the operation of the pipelines and control of the pollution and its sources.

In any event, the foregoing does not prejudice the competent authority's right to claim from the party causing the damage the costs pertaining to removing the effects resulting from the pollution and for compensation for damages resulting there from.⁽⁸⁰⁾

Violation of articles 30, 31 and 33 of the Environmental law regulating Dangerous Petroleum Materials and Wastes would subject the offender to imprisonment for not less than one year and a fine of not less than LE 10,000 and not exceeding LE 20,000 or both.⁽⁸¹⁾

Failure to ensure safe storage and transport of construction, demolition or drilling wastes results in a fine not less than LE 500 and not exceeding LE 1,000. In addition, a court may order the suspension or cancellation of the license.⁽⁸²⁾

Article 87 stated that:

“ Failure by entities undertaking exploration, digging, extraction, production, refining and processing of crude oil to comply with controls and procedures described in the Environmental law and its executive regulation results in a fine not less than LE 200 and not exceeding LE 20,000.

Disposal of untreated material, wastes or liquids causing pollution to Egyptian shores or waters adjacent thereto, whether voluntarily or involuntarily, directly or indirectly results in a fine not less than LE 200 and not exceeding LE 20,000.

Exceeding maximum emission levels of air pollutants, burning, dumping, or treating solid waste in areas other than those designated, exceeding maximum levels of smoke, gases and fumes during combustion of fuel for industrial or power

⁽⁸⁰⁾ Environmental law, Article 85.

⁽⁸¹⁾ Environmental law, Article 85.

⁽⁸²⁾ Environmental law, Article 86.

generating purposes or exceeding humidity and temperature levels in the workplace or failure to prevent proper ventilation results in a fine not less than LE 1,000 and not exceeding LE 20,000. In case of recurrence the penalty shall be imprisonment and fine.

Failure to provide the necessary means of protecting the workers in implementation of workplace health and safety measures, including the choice of machines, equipment, material, type of fuels, taking into consideration the period of exposure to the pollutants and ensuring adequate ventilation of the workplace and the installation of chimneys and other air clearing methods results in a fine not less than LE 1,000 and not exceeding LE 20,000. In case of recurrence the penalty shall be imprisonment and fine.”

Dumping pollutants, oil, oil mixtures, dangerous substances or liquid harmful materials or wastes in the territorial waters or the exclusive economic zone of the Arab Republic of Egypt results in a fine not less than LE 150,000 and not exceeding LE 500,000 and in the case of recurrence the penalty shall be imprisonment or fine. In all cases the violators are required to rectify the effects of such pollution.⁽⁸³⁾

Non-treatment of disposed wastes and pollutants in accordance with the available most up to date technical systems and pursuant to the conditions prescribed in international treaties or using unsafe methods that result in damage to the marine environment or discharging any polluting substance resulting from drilling and exploration activities, testing of wells or production in the territorial waters or the exclusive economic zone of the Arab Republic of Egypt results in a fine not less than LE 150,000 and not exceeding LE 500,000 and in the case of recurrence the penalty shall be imprisonment and fine. In all cases the violators are required to rectify the effects of such pollution.⁽⁸⁴⁾

Failure by the owner of a vessel, it's captain or any person in charge of it, the parties in charge of oil transport means located within Egyptian ports, territorial waters or the exclusive economic zone of the Arab Republic of Egypt as

⁽⁸³⁾ Environmental law, Article 90.

⁽⁸⁴⁾ Ibid.

well as oil extraction companies, to notify the competent authority of any oil leakage incident immediately upon its occurrence, including the circumstances of the incident, the type of leaking substance and the procedures taken to stop or limit the leakage would result in a fine not less than LE 70,000 and not exceeding LE 300,000. In case of recurrence the penalty shall be imprisonment and a fine not less than LE 300,000 and not exceeding LE 500,000.⁽⁸⁵⁾

Article 93 states that:

“ Failure by vessels or tankers to keep the oil register, the shipment register or to obtain the certificate for prevention of oil pollution, the international certificate for prevention of oil pollution or the international certificate for prevention of pollution resulting from carrying harmful liquid material result in a fine not less than LE 40,000 and not exceeding LE200,000.

Discharging polluted sanitary water or throwing garbage or wastes within the territorial waters or the exclusive economic zone of the Arab Republic of Egypt result in a fine not less than LE 40,000 and not exceeding LE200,000.

Vessels registered in the Arab Republic of Egypt discharging or throwing oil or oil mixtures in the sea result in a fine not less than LE 40,000 and not exceeding LE200, 000.”

Any intentional violation of the Environmental law resulting in person suffering an incurable infirmity would subject the offender to jail confinement for a period of ten years. The penalty shall be confinement to jail if the violation results in causing this infirmity to three or more persons. If this act results in the death of a certain person, the penalty shall be temporary hard labour. The penalty shall be hard labour for life if the act results in the decease of three or more persons.⁽⁸⁶⁾

A captain of a vessel or the person in charge of it as well as parties to contracts for exploration, extraction and exploitation of offshore oil fields and other natural resources, including means of oil transport, are jointly liable for all

⁽⁸⁵⁾ Ibid.

⁽⁸⁶⁾ Environmental law, Article 95.

damages caused to any natural or juristic person resulting from any breach of the provisions of the Environmental law as well as for settling the fines to be imposed in implementation thereof and the costs pertaining to the removal of the effects of the violation. ⁽⁸⁷⁾

The erection of any establishment within two hundred meters from the shorelines as well as undertaking any work affecting the natural beach line is without prior authorization from the competent authority result in imprisonment for not more than six months and a fine not less than LE 1,000 and not exceeding LE20, 000. ⁽⁸⁸⁾

7.0 Statutory Liability

7.1 Civil Liability

1- Contractor shall entirely and solely be responsible in law toward third parties for any damage caused by Contractor's Exploration operations and shall indemnify the Government and/or EGPC against all damages for which they may be held liable on account of any such operations. ⁽⁸⁹⁾

2- Pursuant to Egyptian law, a principal and its contractors are under a joint obligation to provide vocational health, safety and secure the workplace environment. Any construction contract under Egyptian law must require the contractor to provide for vocational health and safety for its employees. In case the construction contract does not provide for such measures, the Principal shall provide it and deduct its costs from the contractor.

3- A contractor is liable towards the principal for the acts of his subcontractor. ⁽⁹⁰⁾

4- In the absence of a provision of the law or an agreement to the contrary, a person is not liable to make reparation, if he proves that the injury resulted from a

⁽⁸⁷⁾ Environmental law, Article 96.

⁽⁸⁸⁾ Environmental law, Article 98.

⁽⁸⁹⁾ Article 15 of the model Concession Agreement.

⁽⁹⁰⁾ Civil law, Article 661.

cause beyond his control, such as unforeseen circumstances, force majeure or the fault of the victim or of a third party.⁽⁹¹⁾

5- A master is liable for the damage caused by the unlawful act of his subordinate when the act was performed by the subordinate in the course or as a result of his employment. The relationship between master and subordinate exists even when the master has not been free to choose his servant, provided he has actual powers of supervision over his servant.⁽⁹²⁾ However, a person responsible for an act of another person has a claim for redress against that other person to the extent that the other person is responsible for the reparation of the injury.⁽⁹³⁾

6- Whoever is in charge of a thing whose supervision requires special care, or of a machine, is liable for damage caused by it, unless he shows that the damage was due to a cause beyond his control, subject to any special provisions of the law in this respect.⁽⁹⁴⁾

Pursuant to the above, a contractor is liable for compensation for its unlawful acts and the unlawful acts of its employees. However, where a principal exercises actual powers of supervision over the site or over the contractor's employees on site, it would be held liable with the contractor for compensating any damage caused by such employees within the scope of its supervision.

However, where a principal is found liable for the acts of a contractor, the principal would have a claim for redress against the contractor or its employees to the extent that the contractor or its employees are responsible for the reparation of damage.

If the supervision of an installation that requires special care, or of a machine, is entrusted to the contractor or a subcontractor, then such contractor or subcontractor as the case may be would be liable for damage caused by it, unless they show that the damage was due to a cause beyond their control.

⁽⁹¹⁾ Civil law, Article 165.

⁽⁹²⁾ Civil law, Article 174.

⁽⁹³⁾ Civil law, Article 175.

⁽⁹⁴⁾ Civil law, Article 175.

7.2 Criminal Liability

The criminal liability attaches to individuals who commit acts for which there is a penalty of imprisonment or fine. For a person to be found guilty it would be necessary under the principles of the Egyptian criminal law and jurisprudence to prove that the perpetrator of the act did so intentionally or negligently. The Environmental law tends to place strict liability on corporate entities acting through their legal representatives for violations of its provisions.

The legal representative of a company would be held criminally liable under the Labour law for failure to provide vocational health, safety and security of the workplace environment. In such event, an incident could be considered a result of negligence, imprudence, carelessness or non-observance of the statutes and could be punishable under the penal code.

However, if the company is in full compliance with all health, safety and security of the workplace environment laws and regulations imposed by the competent authority no criminal liability would exist.

If an incident was the result of the negligence, imprudence, carelessness or non-observance of the statutes on part of an employee on site or as a result of a breach by an employee of the vocational health safety and security of the workplace environment regulations then that particular employee would be held criminally liable.

In this case, the party exercising control and supervision over said employee would be jointly liable with him for the settlement of the financial penalties and for compensation.

According to the criminal circuit of the Egyptian Cassation Court *“The rule is that anyone participating in construction and demolition works is only liable for his personal mistake. A Principal is not criminally liable for harm suffered by others as a result of not taking adequate precautions during construction, unless work was carried out under his control or supervision. If he assigns all or part of such*

work to a specialized contractor, that usually assumes such work, then the latter shall be liable for his mistakes. (Court of Cassation / challenge 2108 judicial year 32 /hearing date 30/04/1963).

8.0 Conclusion

Although Egyptian laws regulated the protection and maintenance of the environment from the pollution caused by the companies operation in the exploration and exploitation of petroleum, it is still unclear the effect if such protection due to the environment will stand and maintain its integrity after the decision by the Egyptian government to allow the use of coal as source of energy to address the energy shortage. Coal is considered the most polluting of all fossil fuels, and burning coal is a main source of carbon dioxide emissions in the world, according to Greenpeace, a non-governmental international environmental organisation.

Our recommendations are as follows:

1- the penalties imposed by the Egyptian laws regarding the protection of environment need to be more aggressive.

2- Mines and Quarries law needs to be cancelled as it was issued back in 1953 for the mining industry as a whole disregarding the importance of the petroleum industry which should have been regulated by a separate law in order to increase its efficiency, and its replacement with another law implementing and addressing the modern concepts in the oil and gas industry.

3- Addressing the issue of decommissioning under Egyptian laws.

Decommissioning is a technical process means the process by which options for the physical removal and disposal of platforms, pipelines, plant, machinery, wells, facilities and all other installations and structures at the end of their working life are assessed; a plan of action is formulated by the Contractor, approved by the government and then implemented. The overall timescale for this process is several years, as it needs to take into account many diverse factors and involves many organisations. The importance of decommissioning is due to the consensus

of opinion had emerged that there is a lack of legal framework organising this issue existed which had to be filled and the impact of it on environment. With the development of basic international standards for the continental shelf areas, a momentum was given to host governments to review their existing legislation for abandonment of all kinds