

THE
PETROLEUM ACT
(CAP 350 LFN)

**MINERAL OILS
(SAFETY)
REGULATIONS 1997**

Commencement: 1st October 1997

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MINERAL OILS (SAFETY) REGULATIONS 1997

COMMENCEMENT: 1 OCTOBER 1997

In exercise of the powers conferred upon me by Section 9 of the Petroleum Act and of all other powers enabling me in that behalf, I, Chief Dan L. Etete, Minister of Petroleum Resources hereby make the following Regulations:

PART I - DUTIES OF LICENSEES AND LESSEES

DUTIES OF LICENSEES AND LESSEES

A licensee or lessee under a license or lease issued under the Petroleum Act shall:

- Appoint, in writing, a person to be a manager who shall take continual charge of all the operations **authorized by the license or lease;**
- Notify the Director of Petroleum Resources, in writing, of an appointment made under subparagraph (a) of this regulation and of any subsequent change in the appointment;
- Provide, for the work force, sufficient safety equipment, of internationally approved **types;**
- **Ensure that every personal protective equipment is judiciously used and maintained in serviceable condition at all times;**
- **Provide, at every well being drilled or worked over, flow station or any installation handling crude oil, natural gas or any petroleum products, fire fighting and first aid equipment in accordance with good operating practice and to the satisfaction of the Director of Petroleum Resources;**
- **Provide clear, comprehensive, safe and practical operational procedures and guidelines for the workforce;**
- **Develop good health protection and promotion programmes for the staff; and encourage his contractors to take similar actions;**
- **Ensure that there is specified in every contract, in unambiguous words, the responsibilities of the contractors with regards to safety of operations; and**
- **develop and maintain contingency procedures and measures for the safety of personnel and equipment in an emergency.**

FACILITY DEVELOPMENT PROJECTS

In the implementation of a facility design and construction or major modification project, the licensee or lessee shall:

- **carry out a comprehensive risk analysis of the project in accordance with API recommended practice, where applicable, or other internationally accepted procedures, or documented standards of the licensee or lessee;**
- **ensure that every safety and communication system conform to acceptable standards and specifications in the petroleum industry;**
- **have an integrated emergency plan to cater for all credible forms of hazardous events and**

accident situations that are likely to occur; and

- ensure that accredited representatives of the Department of Petroleum Resources (in these Regulations referred to as “the Department”) participate fully in all the HAZOP, SAFE chart or any other similar technical review meetings on the project or any critical equipment inspections as applicable.

OFFENCES UNDER THIS PART

A licensee or lessee who fails to comply with the provisions of this Part of these Regulations is guilty of an offence and liable on summary conviction to a fine not exceeding N250,000., or imprisonment for a term not exceeding 5 years or to both such fine and imprisonment.

PART II- DUTIES OF MANAGERS

ENSURING COMPLIANCE WITH REGULATIONS

It shall be the duty of every manager appointed pursuant to these Regulations to ensure that the provisions of this Part of these Regulations are fully complied with.

APPOINTMENT OF COMPETENT PERSONS

The manager shall:

- appoint, in writing, competent persons who shall supervise all seismic, drilling, production, processing, loading, transportation, diving operations and such other operations as the licensee, lessee or manager may, from time to time, deem necessary,
- report every appointment made under subparagraph (a) of this regulation and any subsequent change to the Director of Petroleum Resources;
- ensure that all competent persons appointed to supervise oil field operations and maintenance of petroleum facilities and process plants are given appropriate training for the efficient and safe performance of their jobs;
- maintain a documented system setting out the responsibilities of the competent persons involved in onshore and offshore operations, their mutual relations and lines of reporting and communications; and
- develop appropriate hazard communication channels, e.g. use of posters, bulletins, slogans, jingles, etc.

DRILLING AND PRODUCTION OPERATIONS

Except as otherwise provided in these Regulations, every drilling, production and other operation which is necessary for the production and subsequent handling of crude oil and natural gas shall conform with good oil field practice which, for the purpose of these Regulations, shall be considered to be adequate if it conforms with:

- the appropriate current Institute of Petroleum Safety Codes; or
- the American Petroleum Institute Codes; or
- the American Society of Mechanical Engineers Codes; or

- any other internationally recognised and accepted systems.

PERSONAL PROTECTIVE EQUIPMENT

The manager shall ensure that:

- Sufficient safety equipment, of international approved type, are provided for the work force; and
- every personal protective equipment is judiciously used and maintained in serviceable condition at all times.

INJURIES AND FIRST AID

The manager shall:

- produce and conspicuously display at every drilling location or other installation, an up-to-date information, on the names, addresses and telephone numbers of the nearest physicians, hospitals and ambulance services;
- ensure that first aid kits are equipped with appropriate medicament and served by qualified first aid personnel; and
- ensure that contingency plans are in place to deal with injuries that are more serious than first aid cases.

FIRE PROTECTION

The manager shall see that:

- There shall be established, in areas of operation, in appropriate locations, restricted areas in which open light, fire and smoking shall be prohibited.
- A “no smoking” sign shall be prominently displayed in every restricted area established under paragraph (1) of this regulation
- A sufficient number of approved fire fighting equipment shall be provided.
- The fire fighting equipment shall be -
 - (a) inspected in accordance with the manufacturers recommendations or at least twice a year; and
 - (b) maintained in serviceable condition at all times.
- Records and tags shall be maintained showing the last dates of service of the equipment and workers shall be:
 - (a) trained in the use of the fire fighting equipment; and
 - (b) periodically given refresher courses to reinforce and update their abilities to use the fire fighting appliances.

RIG SAFETY—GENERAL

The manager shall ensure that:

- every rig contracted to drill in Nigerian territory:
 - (a) is inspected, technically audited and approved by the Director of Petroleum Resources or his accredited safety experts before it is used by the licensee or lessee, and
 - (b) thereafter, is inspected and audited every year;
- every mobile rig conforms to its design criteria, construction standard and other safety standards contained in the International Maritime Organisation Code for the construction and equipment of mobile onshore and offshore drilling units' codes 1979 and 1989 editions and other subsequent amendments.

ELECTRICAL SYSTEMS IN RIGS

Rig wiring shall be:

- installed in a manner which protects it from abrasion, from being trampled on or being burned by hot piping;
- insulated to resist weather, chemicals and handling to avoid short circuits; and
- inspected frequently, as dictated by good oil field practices and in compliance with the Institute of Electrical Engineers Codes or similar international codes.

DERRICKS IN RIGS

The manager shall ensure that:

- Reasonable provisions shall be made to prevent derricks and portable cantilever, telescoping and jack-knife masts from overturning due to wind velocity, and the guying system shall be constructed in accordance with standard safe practices in the petroleum industry.
- Escape lines (land rigs) shall be:
 - (a) free of knots, splices and other obstructions; and
 - (b) so located and secured as to permit the derrick man to descend at a safe speed to a zone clear from the derrick.
- Access routes from the derrick floor to the derrick crown-platform shall be provided and kept free of obstruction.
- A safety harness and lifeline shall be provided for each employee who works above the first girt of a derrick or mast.
- The lifeline shall be tested before the start of drilling and thereafter, at weekly intervals and all employees who work on the derrick shall be instructed in its use.

- Every drilling rig floor shall be kept as free of mud and oil as practicable in order to eliminate slipping hazards.
- Every tool board shall be mounted on the derrick floor and every tool shall be regularly inspected and checked to ensure its serviceability.

BLOWOUT PREVENTION

The manager shall ensure that:

- The blowout preventer installation shall be substantially constructed, securely fastened in place and be of adequate rating for the expected maximum shut-in surface pressure based on the anticipated down hole pressure.
- Well-controlled drills shall be conducted once a week, under a variety of operating conditions and, in addition, BOP tests shall be conducted during rig operations when the BOP is installed on the wellhead.
- Emergency procedures and individual duties shall be posted conspicuously around the rig.

CONTROL DEVICES

Every control device shall conform to good oil field practice, with respect to design, installation and maintenance, and safety guards shall be incorporated as applicable, to avoid accidents.

PERFORATING OPERATIONS

Perforating operations shall be suspended during electrical, thunder and dust storms, and radio transmission shall be suspended during perforating operation to avoid premature detonation, that is, waves setting off the blasting caps or the gun.

NOISE ABATEMENT

The manager shall ensure that:

- workers are provided with the appropriate hearing protection if noise levels are equal to or greater than 85 dBA for an 8 hour time weighted average TWA.
- No person shall, unless appropriately protected, be exposed to noise level equal to 115 ~A or greater for any length of time, notwithstanding that the TWA is below 85 dBA action level.
- The sound pressure level at the edge of the nearest residential area shall not exceed 50 dBA at night
- Annual audio-metric tests shall be conducted for all personnel working in high noise areas.

DUTIES OF INSTALLATION MANAGER—OFFSHORE OPERATIONS

For the safe conduct of offshore operations, the manager shall ensure that:

- the platforms, vessels and rigs are well equipped and adequate for the environment of the operation;
- there is a good oil spill response plan and equipment approved by the Director of Petroleum

Resources.

- competent and well equipped diving standby set-up is available when diving operations are in progress or are likely to be required;
- there are personnel floatation devices for each person at the location;
- a platform, rig or vessel evacuation plan is in place and understood by all workers at the location; and
- there are available such other things and materials as are necessary for the operation.

SAFETY TRAINING

Every person employed offshore shall receive the following safety training, that is:

- fire fighting;
- survival swimming; and
- such other training as the Director of Petroleum Resources or manager may deem necessary for the operation.

AIR TRAVEL SAFETY

The manager shall ensure that:

- All Passenger shall before the commencement of any flight, be briefed by the pilot. ground crew or air crew staff on safety measures, including pre-flight safety actions and emergency landing and ditching procedures.
- Passengers shall await the aircraft in designated locations.
- Every pilot shall comply with the following Federal Aviation Administration requirements, that is:
 - (a) have biennial review to certify his flight performance ability;
 - (b) successful completion of water survival courses;
 - (c) refresher courses every 4 years; and
 - (d) such other requirements as may be imposed. from time to time, for pilots.

OFFSHORE MANAGEMENT SYSTEM MANUAL

There shall be made available for every operation a management system manual. Specifying:

- the share of responsibilities between marine crew and drilling or production crew;
- the lines of command in an emergency;
- the share of responsibilities between offshore organization and shore base organization;
- the inter-field responsibilities and communications;
- the scheme for risk analysis, system for implementation and follow up of results;

- the helicopter abandonment procedures in the event of a ditch or capsize, including ditch preparation, stable flotation abandonment and capsize abandonment procedures;
- the personnel documentation procedures at the shore base; and
- the arrangements for protecting persons on the installation from hazards of explosion, fire, heat, smoke, toxic gas and fumes during a period of emergency.

WASTE MANAGEMENT

The handling and disposal of:

- liquid and solid wastes, including drilling fluids and mud, drill cuttings, deck drainages, sanitary and domestic wastes, accidental oil spills or blowout; and
- other wastes generated from drilling operations;

shall conform with specifications as prescribed in the “*Environmental Guidelines and Standards for the Petroleum Industry in Nigeria*” issued by the supervising agency for petroleum matters.

MOVING MACHINERY

The manager shall ensure that:

- Every rotation or reciprocating equipment and every dangerous part of any machinery shall be securely **fenced or guarded**, where it is practical to do so.
- Every guard protecting rotary table chain or similar machinery shall be capable of resisting the shock of a breaking chain.

BOILERS AND OIL TREATERS

The manager shall ensure that:

- The position and distance of a boiler, an oil treater or a hot work area in relation to bore hole and dangerous area shall be taken into account before setting the boiler or oil treater or establishing the hot work area.
- Where practicable, every boiler or oil treater shall be placed upwind from the nearest bore-hole or well in the direction of the prevailing wind and in a naturally ventilated area.
- Every boiler or oil treater shall be thoroughly inspected by competent personnel at intervals of 26 calendar months.
- Non-destructive test, including Ultrasonic Thickness Measurement (UTM) survey or radiographic or any other acceptable inspection techniques shall be carried out on the boiler tube during an inspection under paragraph (3) of this regulation
- Records of the results of every inspection shall be kept and made available on demand.
- Pressure test shall be carried out at intervals of not more than 26 months, in accordance with the manufacturer's recommended designed test pressure limits.

RESTRICTION ON USE OF INTERNAL COMBUSTION ENGINES

The use of internal combustion engines within:

- 45 metres of the center of any bore hole being drilled for crude oil or gas or being worked over; or
- 30 metres of a dangerous location;

is prohibited unless precautions have been taken to prevent fire explosion.

INSTALLATION OF ELECTRICAL EQUIPMENT

The installation of electrical equipment:

- at well sites or any other dangerous area shall comply with the application code of international practice, including API RP 500.

ELECTRICAL EQUIPMENT COMPLIANCE WITH DESIGN SPECS

Every derrick at a well being drilled or brought into production shall be:

- fitted with switches, capable of cutting off the electrical power from the electrical installation on the derrick; and
- placed adjacent to the normal working position of the driller.

NOT INVALIDATING FLAME PROOF CHARACTERISTICS

Every electrical apparatus in use on the drilling site or any other restricted area shall:

- comply with the specifications for flame or explosion proof apparatus in the relevant codes of the British Standard 29, the National Safety Code of the USA or of other equivalent national or international codes of practices.
- Every cable gland and bolted cable shall be constructed and installed in conformity with the relevant recognized international standards for flame or explosions proof fitting of the type.

Every apparatus, cable, fitting and any other electrical material shall be installed and maintained to ensure that the flame proof or explosion proof characteristics, as the case may be, are not invalidated.

SAFETY OF APPARATUS'

Every apparatus, including a telephone bell and an associated wiring, used for communication purposes within a dangerous area, shall be certified intrinsically safe in conformity with British Standards 1259 or other equivalent international standards.

INSPECTION OF PRESSURE VESSELS & OIL HEATERS, ETC.

- Every pressure vessel and its fittings in use in an oil field operation shall be regularly examined in accordance with the manufacture's recommendations and where no recommendations exist, then inspection shall be carried out in accordance with good oil field

practice.

- Records of every inspection carried out under paragraph (I) of this regulation shall be maintained and made available on demand.
- Every oil heater and its internal and external parts and fittings shall be inspected at intervals of not more than 24 months and the fire tubes replaced when they are below the minimum thickness.
- Every compressed-air receiver shall be:
 - (a) drained of liquid every day; and
 - (b) tested hydraulically to the recommended pressure:
 - when the internal surface of the receiver cannot be inspected, and
 - in any other case, not less than once in every 60 months.
- Every gas separator and scrubber shall be tested to the recommended test pressure whenever the opportunity occurs but at intervals not exceeding 5 years.
- Every vessel, other than work-over rig poor-boy and vacuum degasser, that has been in service for more than 20 years, shall be:
 - (a) inspected at intervals of not more than 30 months; and
 - (b) tested hydraulically to the recommended test pressure during the inspection.
- Every relief valve and safety valve shall be inspected at least once in every 30 months or at such shorter intervals as shall be necessary to maintain them in satisfactory conditions to ensure that they:
 - (a) operate effectively whenever the maximum allowable working pressure is applied; and
 - (b) pass full design quantity at those settings.
- Every safety valve shall be stamped or tagged at its popping pressures and where appropriate, bursting discs of equivalent rating may be used in lieu of safety valve.
- Every pressure vessel shall be tested with a calibrated pressure gauge which shall be:
 - (a) graduated in pounds per square inch or the metric equivalent; and
 - (b) checked for accuracy at intervals not exceeding 12 months.
- Every new pipe work and every pipe work which has been extensively modified or re~ed shall be tested in accordance with the American Society of Mechanical Engineers (ASME) working standards or recognized equivalent standards to 1.25 times the maximum allowable working pressure before being put into service.
- In this regulation, “recommended test pressure,” means pressure, which is not less than one half times the maximum allowable working pressure.

PRESSURE VESSEL STANDARDS

- Every pressure vessel equipment and associated piping used in oil field installations shall meet the National Association of Corrosion Engineers (NACE) or other recognized equivalent standards for monitoring and controlling corrosion, with respect to their design, construction, routine inspection, testing and maintenance.
- The following measures shall, in addition to the respective manufacturer's recommended procedures, be taken in relation to every pressure vessel, equipment and associated piping used in oil field installations, that is:
 - (a) nondestructive testing, including Ultrasonic Thickness Measurement (UTM), shall be carried out at intervals not exceeding once in 5 years to check the rate of both internal and external corrosion and erosion;
 - (b) when corrosion coupons are used for monitoring the corrosion rate in a pressure vessel, equipment or piping.
 - the results obtained at any given time shall be recorded and be made available on demand;
 - when cathodic protection system is chosen for the control of vessel internal corrosion. an appropriate design of the system shall be made to meet the NACE or other recognized equivalent standards.
- The result of every inspection, test and survey carried out pursuant to this regulation shall be made available on demand.

BULK STORAGE TANKS

- Every permanently placed bulk storage tank containing liquid petroleum shall:
 - (a) be installed within a bund wall capable of containing the content of the largest tank plus ten per cent of the volume of the remaining tanks.
 - (b) be fitted with access ways sufficiently large to allow easy excess, and vents capable of relieving any excess pressure or vacuum;
 - (c) have access to its roof by means of a ladder or staircase of approved standards;
 - (d) have provisions made for containing any leakage to prevent contamination of water by oil for tanks installed in marine environments;
 - (e) be provided with efficient electrical earth connections, having an electrical resistance value not exceeding ten ohms when measured by an earth resistance tester of the "Megger" or similar type.
 - (f) be provided with:
 - adequate lightning protective device preferably of the "Envelope Protection type" that prevents any direct strike and the development of primary and secondary charges. or
 - devices equipped with multi-point ionizers, or

(g) any other device of similar protection effectiveness as recommended by any other relevant international bodies and approved by the Director of Petroleum Resources.

- Every floating roof tank shall be equipped with adequate Wind girders.

BREATHING APPARATUS REGULATIONS

- No workman, without the appropriate breathing apparatus, shall be allowed to enter a hydrocarbon storage tank for cleaning or inspection unless it is free of hydrocarbon gases and is continuously ventilated.

STORAGE TANK CLEANING OPERATIONS

- During storage tank cleaning operations:
 - (a) adequate ventilation shall be provided inside the tank and as work progresses, frequent tests shall be carried out to detect any increase in gas concentration;
 - (b) adequate safety equipment and devices shall be provided for workers entering the tank for their protection and survival in case of emergency while working in the tank;
 - (c) the use of sand as an abrasive agent in blasting activities for cleaning of steel structures - tanks and pipelines shall be minimized; and
 - (d) abrasive agents, when desired, shall be of less than 1 percent free silica and only be used when adequate safety precautions have been taken.
- If the gas concentration in a storage tank exceeds 5 per cent of LEL:
 - (a) gas masks shall be worn by workers;
 - (b) the tools used shall not be capable of causing sparks; and
 - (c) hand lamps and torches used shall be certified flame proof, Group II, in conformity with British Standard 229 or the US National Electrical Safety Code or any other recognized international standards.

STORAGE TANK INTERNAL INSPECTIONS

- Storage tanks shall be opened for internal inspection at intervals of not more than 60 calendar months.
- During an inspection:
 - (a) the tanks shall be subjected to thorough visual and non-destructive test inspections;
 - (b) any defect affecting the integrity and operability of the tanks observed shall be repaired and or rectified; and
 - (c) Ultrasonic Thickness Measurement (UTM) of tank shells shall be carried out and records made available on demand.

CATHODIC PROTECTION

- The bottom plate of every tank shall be equipped with cathodic protection device, which shall be designed to meet the NACE or other internationally recognised equivalent standards.
- The effectiveness of cathodic protection device shall be regularly monitored and maintained in accordance with the design standards.

TANK SAFETY

- All petrol, diesel oil or LPG tank shall be sited a safe distance from any oil well being drilled or worked over or any dangerous area in a direction down-wind from the prevailing wind.
- No person shall enter a tank which has contained petroleum unless:
 - (a) the tank has been certified safe by a competent person; or
 - (b) there is attached to him, a lifeline held by another person standing:
 - outside at a safe distance, and
 - in a position to observe if the person is overcome by gas or fumes.
- No person shall enter a sump or well cellar which has or have contained petroleum unless there is attached to him, a lifeline held by another person standing -
 - (a) at the top of the sump or well at a safe distance; and
 - (b) in a position to observe if the person is overcome by gas or fumes.
- A person holding a lifeline referred to in paragraphs (1) and (2) of this regulation shall:
 - (a) if an accident occurs, call for help; and be equipped to render such assistance as is practicable without entering the tank, sump or well cellar until the help arrives.

LIFTING EQUIPMENT

Cranes and Hoists

- Every crane and hoist shall be operated by a trained person who shall always ensure that the crane or hoist shall be inspected and maintained as recommend by their manufacturers.
- The chains, ropes, lifting tackle, hook and brake system of the crane or hoist shall be inspected and maintained as recommend by their manufacturers.
- General preventive maintenance shall be carried out on every crane and hoist as recommended by the manufacturer or at intervals of not more than 12 months.
- Records of periodic maintenance shall be kept and made available on demand by the relevant authority.

SAFE ACCESS

- Safe access shall be:
 - (a) provided on all drilling rigs and other installations. with non -slip walkways and handrails leading over complex pipe Systems and other obstructions; and
 - (b) kept free of obstructions.
- Every drain in the area of general access shall be covered.

RESTRICTED AREAS

- Every well being drilled or worked over, flow station, pump station, tank farm, and similar installation shall constitute restricted areas, and their boundaries shall be clearly defined and secured.
- No person shall be admitted into a restricted area unless he is authorized to do so by a competent person.
- A notice shall be prominently displayed at the entrance of a restricted area giving details of the nature of the restrictions.

FIRE PRECAUTION

- There shall be provided and kept in readiness for immediate use and to the reasonable satisfaction of the Director of Petroleum Resources, adequate means designed to extinguish fires which occur in any well being drilled or worked over, flow station or other installation where petroleum is handled.
- Each piece of fire fighting equipment shall be inspected, at least twice a year, by a competent person.
- The date of the last inspection of a fire fighting equipment shall be tagged or painted on the appliance and the result of the inspection entered in a log book kept on site for that purpose.
- Persons employed on site shall be instructed in the use of fire fighting equipment, and instruction to those persons in case of fire shall be clearly and concisely expressed and prominently displayed on the location.
- A “No Smoking” sign shall be prominently posted at strategic points in a restricted area.
- Whenever a gas or oil fire occurs at a well, flow station or other installation handling petroleum, a report of the circumstances and probable cause of the fire shall be forwarded to the nearest inspector within 24 hours and to the Director of Petroleum Resources within 48 hours of the occurrence.
- When a pipeline runs in an open trench, a fire-stop shall be provided at such intervals as may be specified in the relevant guidelines, except that the distance between any two fire stops shall not exceed 90 metres.
- A fire clearance zone of a minimum of 3 metres shall be maintained around the perimeter fence of any well being drilled or worked over, flow Station, depot or other installation where petroleum is handled or stored.
- A licensee or lessee who maintains a fire-fighting unit or service shall while responding to or

engaged in or returning from a fire-fighting operation, have the right of access, right of way and security of its fire equipment as granted to the Federal Fire Service under sections 32, 33, and 35 of the Fire Service act.

HYDROGEN SULFIDE GAS

- The occurrence of hydrogen sulfide in any gas or oil well shall be reported to the nearest inspector within 24 hours and to the Director of Petroleum Resources within 48 hours of the occurrence.
- Tests shall be made immediately after the occurrence referred to in paragraph (1) of this regulation to determine the concentration of the hydrogen sulfide in the gas and steps shall be taken to immediately protect all persons working on the well.
- The danger of breathing hydrogen sulfide bearing gas shall be made known to all workers on site.

The precautions taken shall include the provision of an adequate number of "blowers" and self contained air or compressed air type breathing apparatuses at the well and on any subsequent well in the same field or on any other well likely to penetrate the hydrogen sulfide bearing formation.

PIPELINES

- Every pipeline used in an operation shall be designed, constructed and maintained:
 - (a) in accordance with the guidelines issued by the Director of Petroleum Resources; and
 - (b) in compliance with the relevant provisions of the ANSI, ASME, NACE and other applicable national and international standards.
- No pipeline shall be put into operation unless commissioning approval has been obtained from the Director of Petroleum Resources.
- The right of way of every pipeline shall be free of overgrowth and weeds to allow for free access to cam, out operational tests and any other maintenance work and for prompt detection of leakages.
- Pipelines equipped with pig traps shall be pigged at intervals not exceeding 5 years.
- Pipeline pressure testing shall be carried out at intervals of not more than five years at pressure not less than 125 per cent of the maximum operating pressure.
- A pipeline running on the surface shall be externally coated to meet the relevant provisions of the NACE or equivalent standards to prevent atmospheric corrosion attack.
- Every pipeline shall be suitably coated before burial and therefore cathodic protection shall be provided:
 - (a) within 12 months, in the case of dry land; and
 - (b) within 6 months, in the case of swamp land.
- The cathodic protection system shall be designed and constructed to meet the NACE standards or other internationally recognized equivalent standards.

- Cathodic protection potential survey shall be carried out on all buried pipelines at intervals of not more than 24 months to ensure that every section of the protected line attains a negative potential of not less than 850 mV with reference to copper/copper sulfate reference electrode.
- The result obtained during a survey carried out pursuant to paragraph (9) of this regulation shall be recorded and made readily available on demand.
- The Director of Petroleum Resources may appoint officials to witness any periodic survey carried out pursuant to paragraph (9) of this regulation.
- All other applicable safety provisions for the design, construction, commissioning, operation and maintenance of pipelines shall be as stipulated in the current editions of the guidelines issued by the Director of Petroleum Resources.

WORKER SAFETY REPORTING

- The manager has principal responsibility for the safety of the workers, including his contractors and shall ensure that sufficient safety and risk awareness training and certifications are given to employees prior to their deployment at onshore or offshore locations.
- Where an accident occurs at a well or in connection with an operation under a license or a lease, resulting in the death of, or serious injury to, a person, a full report on the accident shall forthwith be forwarded to the nearest inspector within 24 hours and to a Director of Petroleum Resources within 48 hours of the occurrence.
- An inspector or the Director of Petroleum Resources to whom an accident is reported under paragraph (2) of this regulation may order an enquiry into the circumstances surrounding the accident.
- The provisions of this regulation shall be additional to the requirements of the Workmen's Compensation Decree 1987 and any other applicable Government Regulations.
- For the purposes of this regulation “serious injury” means:
 - (a) a fractured skull, pelvis, thigh spine, arm, forearm or leg;
 - (b) a dislocated shoulder;
 - (c) the amputation of an arm or hand, or of one finger or more on the same hand, or of a leg or a foot;
 - (d) the loss of the sight of an eye; or
 - (e) any other serious bodily injury, including internal hemorrhage, burns and asphyxia; where the injury is likely to endanger life, cause permanent incapacity, or substantially impair efficiency.

REGULATION 44(3) INQUIRIES

- A person holding an inquiry under regulation 44(3) of these Regulations shall, for the inquiry have the powers of a magistrate to,
 - (a) summon witnesses;
 - (b) call for the production of books and documents: and
 - (c) examine witnesses and parties.
- A person summoned to attend or to produce a book or document who:
 - (a) refuses or neglects to do so; or
 - (b) refuses to answer any question put to him by or with the concurrence of the officer holding the inquiry, is guilty of an offence and liable, on summary conviction, to a fine of N50,000.
- No person answering a question put to him shall be put under pressure to incriminate himself.
- A witness shall, in respect of any evidence given by him at an inquiry, be entitled to the same privileges to which he would have been entitled to if giving evidence before a court of law.
- A witness attending at the request of or upon summons by a person holding the inquiry shall, subject to any order made by the person, be entitled to the same expense allowance as if summoned to attend a magistrate court and payment shall be made in the same manner as if the person were a witness in a trial in a court of law.
- All summons shall be in the form set out in the Schedule to these Regulations and shall be served by the security agents or by such other person as the officer issuing the summons may direct.

DISPLAY OF REGULATIONS

A copy of these Regulations shall be prominently displayed at all times at every well being drilled for oil or gas or being worked over and at the location of every installation handling petroleum.

OFFENCES UNDER THIS PART

A manager who fails to comply or ensure compliance with any of the provisions of this part of these Regulations is guilty of an offence and liable on summary conviction to a fine of not exceeding N250,000., or imprisonment for a term not exceeding 5 years or to both such fine and imprisonment.

PART III- DUTIES OF EMPLOYEES

ENSURING COMPLIANCE WITH REGULATIONS

It shall be the duty of every competent person appointed under regulation 5 of these Regulations to ensure that the provisions of this part of these Regulations are fully complied with.

MINORS AT THE WORK SITE

No person under the age of 18 years shall be on the derrick floor while a well is being drilled or worked over.

ACCUMULATION OF FLAMMABLE & COMBUSTIBLE MATERIALS

No person shall accumulate or permit the accumulation of flammable or combustible materials at any well, flow station, depot, pump station, tank farm or any other installation handling petroleum.

PERSONAL PROTECTIVE EQUIPMENT

- Every person, working on a drilling rig, flow station, depot, pump station, tank farm, or other installation handling petroleum shall wear personal protective equipment that will provide adequate protection against credible hazards and is in line with good oil field practice.
- Every person working at a fixed workstation above the derrick floor of a drilling rig or other high rise installation shall wear a safety harness.
- No tool, machine part or other loose material of any kind shall be kept above the derrick floor or on the elevated platform of an installation, unless it is required for immediate use, in which case adequate precaution shall be taken to prevent injury to any person below.
- No counterbalance shall clear the ground or derrick floor by more than one and a half metres unless adequate precaution is taken to prevent injury to any person below the derrick floor.

DISABLING SAFETY SAFEGUARDS

- No person shall remove or render ineffective any safeguard while the machinery relating to it is in operation.
- Where it is necessary to make an adjustment or a repair to machinery the machinery shall be shut down and not be operated again until the safeguard is replaced.
- No person other than a duly qualified person or technician shall open or restore flame proof or explosion proof equipment. On completion of any necessary adjustment or repairs of the equipment, the person shall ensure that it is so restored that the flame-proof or explosion-proof characteristics have not been impaired by the opening and closing of the equipment.
- An adjustment to or a repair of any apparatus within the flame-proof or explosion proof equipment shall not be carried out until all the live parts within it have been made dead and efficiently grounded.
- No person other than a duly qualified person, shall repair, adjust or maintain signaling equipment, and on completion of any repair, adjustment or maintenance, the person shall ensure that the intrinsic safety qualities of the electrical circuit have not in any way been impaired.

IMPROPER PERSONAL BEHAVIOR WHILE ON DUTY

- No person who is at a well or in an installation where petroleum is being handled shall during the period he is on duty:
 - (a) sleep, or
 - (b) consume an alcoholic liquor or a hard drug; or
 - (c) be admitted for duty while under the influence of alcoholic liquor or hard drug.
- No person who is at a well or in any other restricted area, within the context of these Regulations, shall:
 - (a) smoke; or
 - (b) discharge any firearm or explosive; or
 - (c) use any naked light; or
 - (d) make any fire;

except in such places as may be set aside and notified by the manager for that purpose as being safe for the prevention of fire.

OTHER SAFETY MEASURES

- A competent person shall be responsible for the observance of all safety measures at a drilling Site or at an installation handling petroleum where work is in progress and in particular he shall ensure that work does not:
 - (a) start before essential safety measures are in place; or
 - (b) continue if safety can no longer be assured.
- A person employed under a license or lease who notices an unusual escape of:
 - (a) petroleum oil or gas from a well, pipeline or an installation; or
 - (b) anything unsafe or likely to produce damage,shall forthwith inform the manager or competent person of the escape.

SAFETY VIOLATIONS

A person who fails to comply, or ensure compliance, with any of the provisions in this Part of these Regulations is guilty of an offence and liable on summary conviction to a fine not exceeding N100,000., or to imprisonment for a term not exceeding 2 years, or to both such fine and imprisonment.

PART IV - DIVING OPERATIONS:

GENERAL RESPONSIBILITIES & REQUIREMENTS

- It shall be the duty of the manager of an installation to:
 - (a) safely handle all diving operations and the activities of his diving contractors, to ensure that, as far as is reasonably practicable, the activities are carried out in accordance with all relevant local legislation, codes, standards and other international safe diving practice;
 - (b) ensure that:
 - there is in writing, clear and concise responsibilities, guidelines and directives for all personal supervising or engaged in diving operations,
 - diving procedure manuals, emergency and contingency guidelines are kept on site and readily available to an inspector of the Department of Petroleum Resources on demand,
 - a diving contractor who is retained on a long term basis, and is evaluated every 6 months to ensure that his performance is in keeping with approved standards.
 - And the equipment deployed to the operations remain in perfect conditions;
 - (c) require a diving contractor to supply breathing mixture of suitable content and temperature and of adequate pressure and rate to sustain prolonged vigorous physical exertion at ambient pressure for the duration of any diving operations.
- Where a diving operation is to be carried on during the hours of darkness, such plant and equipment as may be necessary to illuminate adequately the place from which the diving is being carried on shall be provided, except where the nature of the diving operations renders the illumination undesirable.
- Each gas cylinder used in a diving operation shall be clearly marked with the name and chemical formula of its contents.
- No person, other than an approved or a certified doctor who has been trained in hyperbaric and Diving Medicine, shall issue a certificate of medical fitness to a diver before being engaged in a diving operation.
- The plant and equipment for diving operations shall be regularly examined, tested and maintained to ensure that they can safely be used.
- The examination of plant and equipment for diving operations shall be carried out by a competent person within 6 hours immediately before a diving operation.

DIVING CONTRACTOR REGULATIONS

- Every diving contractor, who to any extent is responsible for, has control over, or is engaged in a diving operation, shall ensure, so far as is reasonably practicable, that appropriate international diving regulations are complied with, and in particular he shall:
 - (a) appoint a competent diving supervisor, in writing, to be in immediate control of the diving operation on site;

- (b) issue guiding rules for regulating the conduct of all persons engaged in the diving operation;
 - (c) provide a diving operations log book which is to be maintained and retained for at least 2 years after the date of the last entry in it;
 - (d) ensure that all essential tools and facilities for safe operation are available and functional before the commencement of a diving operation; and
 - (e) not permit the use of compressed natural air as the breathing mixture in any diving operation at a depth exceeding 50 metres.
- The contractor shall so far as it is reasonably practicable ensure that:
 - (a) emergency services are available including, in particular, in the case of a diving operation using saturation techniques or at depths exceeding 50 metres, facilities for transferring the divers safely under suitable pressure and conditions to a place where treatment can be given safely under pressure;
 - (b) there are effective means of communication between the place at which the operation is being, or is to be, carried out and the emergency services.

DIVING SUPERVISOR

- The diving supervisor shall have the discretion of deciding whether conditions are not safe enough to commence or continue a diving operation.
 - (a) If the on-site diving supervisor decides to take part in the diving operation as a diver, he shall designate a qualified person to take charge of the diving operation.
- A person shall not take part in a diving operation as a diver unless he has:
 - (a) undertaken formal training to ensure that he is competent to use the plant and equipment provided for the operation; and
 - (b) a valid certificate of medical fitness to dive, issued by a doctor who has trained in Hyperbaric and Diving Medicine.

STAND-BY DIVER

- There shall be for every diving operation a stand-by diver who shall, where a diving bell is being used:
 - (a) descend in the bell to the depth from which work is to be carried out and remain in the bell to monitor the diver or divers who leave it and
 - (b) be in immediate readiness to render assistance to them in any emergency;
- in all other cases the stand-by diver will be in immediate readiness to dive except that where there are two divers in the water at the same time who are near enough to be able to communicate with and to render assistance to each other in an emergency; each one of them may be regarded as the stand-by diver for the other.

- There shall be an extra diver on the surface to render assistance where there is:
 - (a) a special hazard and in particular, where a diver is likely to be endangered by strong current; or
 - (b) risk of a diver being trapped or his equipment entangled.

OFFENCES UNDER THIS PART

- A person who fails to comply, or ensure compliance, with any of the provisions in this Part of these Regulations is guilty of an offence, and is liable, on summary conviction, to a fine not exceeding N100,000., or to imprisonment for a term not exceeding 2 years, or to both such fine and imprisonment.

PART V - MISCELLANEOUS

SWIMMING & LIFE-SAVING EQUIPMENT

The Manager shall ensure that all the oil field workers permanently assigned to swamp and offshore locations shall:

- have received water survival training; and
- on arrival at the location receive instruction on evacuation procedures and the proper use of life-saving equipment.
- All oil field water-borne vehicles shall have life-saving equipment and the personnel operating these vessels shall be trained in the use of the equipment.
- At all manned platforms, internationally approved types of life-saving equipment shall be provided in such number and sizes as is adequate to evacuate all the personnel on site.

MEDICAL FACILITIES

The manager shall ensure that all petroleum installations and related operational areas are equipped with adequate first-aid medical facilities, which shall be set up to meet the requirements of the type of operations being carried out.

EXPLOSIVES: AUTHORIZATIONS, REPORTING, LIMITATIONS

No person shall use an explosive at a well or in an installation where petroleum is handled unless he is authorized by the manager, and prior approval for the handling and use of explosives at the installation has been given by the relevant Government agency.

A report shall be made to the Director of Petroleum Resources of any use of explosives authorized by the manager under regulation 69 of these Regulations.

No person shall locate a building in which fire or light other than a flame-proof or explosion-proof electric lighting installation, is used, within:

- 45 metres of the center of a bore hole being drilled, or which is producing oil or gas or being worked over; or

- 30 metres of a dangerous area;
unless the building is positive pressurized and purged with clean air.

NUCLEAR AND RADIATION SAFETY REGULATIONS

- Without prejudice to the provisions of the Nuclear Safety and Radiation Protection Decree of 1995, every holder of a radioactive source for use in a petroleum operation shall register the source with the Department of Petroleum Resources and provide all necessary information as may be required by the Department.
- The competent person appointed, pursuant to these regulations, shall take all practicable measures to prevent exposure of workers to radioactive materials.
- Appropriate training shall be given to employees on the nature of radiological hazards and the precautions to be observed for all radioactive materials in use in the operations they are engaged in.
- The disposal or accumulation of radioactive wastes shall be prohibited, except in accordance with the Code of Practice of the Nigerian Nuclear Regulatory Authority (in this regulation referred to as "the Authority") and International Atomic Energy Agency procedures.
- The Code of practice of the Authority and all the International Atomic Energy Agency guidelines and recommended standard practices for handling, shipping, transportation, storage and use of radioactive sources shall be strictly complied with in the use of those sources.
- Radioactive sources of minimum strength for the required task shall be used.
- For radioactive sources used in down-hole operations, the capsule containing the isotope shall be designed so as to with it and anticipated well-bore temperatures and pressures without rupture or leakage.
- Wipe or leak tests shall be performed on capsules containing the isotope at intervals of 3 months, as preventive measures and the records made available on demand.
- To avoid accidental loss or theft, isotope sources shall:
 - (a) be securely stored at the operating bases;
 - (b) carry warning labels as approved by the Authority and the International Atomic Energy Agency;
 - (c) be transported in locked containers on specially licensed vehicles; and
 - (d) be fully documented at every stage of handling or transfer.
- At the operating base, suitable underground pits shall be used for storage of isotope sources.
- On offshore platforms and barges, special shielded containers shall be used to store and transport radioactive sources.
- The transport index of each radioactive source shall be conspicuously displayed or tagged on the container.

- For safe field operation of an isotope source, attention shall be paid to:
 - (a) minimizing the time of exposure;
 - (b) maximizing the distance from the source at all times; and
 - (c) providing good shielding to reduce the dose rate.
- Personal dosimeters shall be issued to, and worn by, radiation workers and be evaluated on monthly basis.
- Recommended dose levels by the Authority, International Atomic Energy Agency and the International Commission on Radiation protection shall be strictly complied with. In general, the annual dose level in the case of:
 - (a) Radiological workers, shall not exceed 5000 mr (50msv) per year, (25 Usv per hour for 2000 hour exposure per year); and
 - (b) non-radiological workers, shall not exceed 500 mr (5msv) per year, (0.57 Usv per hour for 8760 hour per year).
- Where a tool containing a radioactive source cannot be recovered from a well, it shall be promptly reported to the Director of Petroleum Resources with details of the abandonment procedure followed in securing the tool safely in place.
- In this regulation –“Authority” means the Nigerian Nuclear Regulatory Authority established under the Nuclear Safety and Radiation protection Decree of 1995.
- The powers and duties of the Director of petroleum Resources under these regulations may be exercised or performed, as the case may be, by any public officer duly authorized in writing in that behalf by him.
- A person who contravenes any provision of these regulations for which no penalty is provided is liable on summary conviction to a fine not exceeding N100,000., or imprisonment for a term not exceeding 2 years, or to both such fine and imprisonment.
- Where under the provisions of these regulations a duty is imposed on a person, the onus of proving that all reasonable steps have been taken to fulfill that duty shall lie on the person charged with the breach of duty.
- The Mineral Oils (Safety) Regulations 1963 as amended, is hereby *revoked*.

REGULATIONS DEFINITIONS

In these regulations, unless the context requires otherwise:

- “ANSI” means American National Standards Institute.
- “API” means American Petroleum Institute.
- “ASME” means the American society of Mechanical Engineers;
- “Class A” Petroleum" comprises all hydrocarbon liquids having flash point up to but not including 730°F by Abel closed cup test and all petroleum stocks with flash point below 200°F that are being handled at temperatures above their flash point;

- “Competent person” means a person appointed by the manager under Regulation # 5 of these regulations;
- “Crude oil” means the natural product of wells or seepages of petroleum oil before the oil has been refined or other treated;
- “dangerous area” means:
 - (a) any enclosed premises containing a dangerous location together with a space extending not less than fifteen metres measured along the shortest part in air of flammable gases or vapor from any point of escape of those gases from the premises; or
 - (b) any open premises containing one or more dangerous locations together with a space extending not less than fifteen metres in all directions from every such dangerous location;
- “dangerous atmosphere” means an atmosphere containing any flammable gas or vapor in a concentration capable of ignition by an open flame or electric spark;
- “dangerous location” means a location where a leakage or emission, of a product which can produce a dangerous atmosphere, is likely to occur;
- “Director of Petroleum Resources” means an officer of the Ministry of Petroleum Resources appointed to exercise and perform those powers and duties as are assigned to him by these regulations;
- “gas” or “natural gas” means gas obtained from bore-holes or released from crude oil and consisting principally of hydrocarbons.
- “gas free”, means an absence of any concentration of combustible toxic gases in a vessel, container or any area below the prescribed limits;
- “inspector” means a petroleum engineer or other officer appointed in writing by the Director of Petroleum Resources to perform any of the duties specified in these regulations or in any of the licenses or leases granted under the Petroleum Act;
- “LEL” means Lower Explosive Limit;
- “L.P.G” means hydrocarbon gas components comprising mainly butane, propane or admixtures thereof capable of being condensed and stored in liquid form in pressure vessels while being gaseous at normal temperature as atmospheric pressure;
- “manager” means the person appointed by the licensee under a license or by the lessee under a lease to be in charge of all operations authorized by the terms of the license or lease;
- “NACE” means the National Association of Corrosion Engineers;
- “pipeline” for the purposes of these Regulations means any steel pipeline greater than 6 inches in nominal diameter carrying crude oil or gas or refined products. excluding those pipelines connecting wellheads with processing facilities;
- “pressure vessel” means a closed vessel of any capacity subjected or which may be subjected to an internal pressure above atmospheric.
- “restricted area” in an installation or oil-field means an area in which certain precautions are necessary to ensure safety by reason of the possible presence of dangerous atmosphere or

because of the operations being carried out there;

- “TWA” means Time Weighted Average
- “unrestricted area” in an installation or oil-field means an area which is free from hydrocarbon vapors in dangerous or hazardous quantities, and in which it is safe to accommodate boilers, open fires or flames, workshop service buildings, or any other similar structures;
- “well” includes every bore-hole drilled or sunk or in the course of being drilled or sunk for the purpose of searching for or producing crude oil or natural gas, and where the context so admits all works adjacent to or connected with the bore-hole which has been reported to the Director of Petroleum Resources as abandoned.

These Regulations may be cited as the Mineral Oils (Safety) Regulations 1997.

SCHEDULE - REGULATIONS 45(6)

Mineral Oils (Safety) Regulations 1997

SUMMONS TO WITNESS

To: (1)

(2)

You are hereby summoned to appear before the undersigned at _____,
upon the day of 200..., to give evidence at an inquiry being held into an
accident at _____ on the day of _____.

You are required to bring with you _____.

Therein, fail not at your peril.

Inspector

Insert name of intended witness.

(1)

(2)

(3) Name any document the intended witness will be required to produce

Insert address of intended witness.

MADE at Abuja this day of 1997

CHIEF DAN L. ETETE,

Honourable Minister of petroleum Resources,

EXPLANATORY NOTE

This note does not form part of these regulations, but is intended to explain their purport.

The Regulations, among other things,

- set out the duties of licensees and lessees to whom licenses and leases have been issued under the Petroleum Act;
- provide for the safety standards to be observed:
 - (a) during hydrocarbon handling operations,
 - (b) during diving operations,
 - (c) and in handling radioactive materials.