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## **Petroleum and Natural Gas (Safety in Offshore Operations) Rules, 2008**

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पेट्रोलियम तथा प्राकृतिक गैस मंत्रालय

MINISTRY OF PETROLEUM AND NATURAL GAS

अधिसूचना

NOTIFICATION

नई दिल्ली, 18 जून, 2008

New Delhi, the 18th June, 2008

का.आ. 1502(अ).—केन्द्रीय सरकार, तेल क्षेत्र (विनियमन एवं विकास) अधिनियम, 1948 (1948 का 53) की धारा 8 के साथ पठित पेट्रोलियम और प्राकृतिक गैस (अपतटीय प्रचालन क्रियाओं में सुरक्षा) नियम, 2008 के नियम 174 द्वारा प्रदत्त शक्तियों का प्रयोग करते हुए, एतद्वारा, पेट्रोलियम और प्राकृतिक गैस (अपतटीय प्रचालन क्रियाओं में सुरक्षा) नियम, 2008 में निर्दिष्ट अधिकारों और कार्यों का प्रयोग करने के लिए सरकारी राजपत्र में इस अधिसूचना के प्रकाशन की तिथि से तेल उद्योग सुरक्षा निदेशालय को सक्षम प्राधिकरण के रूप में नियुक्त करती है।

S.O. 1502(E).— In exercise of the powers conferred by Section 8 of the Oil Fields (Regulation and Development) Act, 1948 ( 53 of 1948 ) read with rule 174 of the Petroleum and Natural Gas (Safety in Offshore Operations) Rules, 2008, the Central Government hereby designates Oil Industry Safety Directorate as competent authority to exercise powers and functions as stipulated in Petroleum and Natural Gas (Safety in Offshore Operations) Rules, 2008, with effect from date of publication of this notification in the Official Gazette.

[फा. सं. 21016/1/2006-ओ. आर-1 (खण्ड)]

[F. No. 21016/1/2006-OR-I (Part)]

एल. एन. गुप्ता, संयुक्त सचिव

L. N. GUPTA, Jt. Secy.

**MINISTRY OF PETROLEUM AND NATURAL GAS****NOTIFICATION**

New Delhi, the 18<sup>th</sup> June, 2008

G.S.R. 469(E). - In exercise of the powers conferred by sections 5,6 and 7 of the Oilfields (Regulation and Development) Act, 1948 (53 of 1948), the Central Government hereby makes the following rules, namely:-

**CHAPTER I****PRELIMINARY**

**1. Short title, extent and commencement.-** (1) These rules may be called the Petroleum and Natural Gas (Safety in Offshore Operations) Rules, 2008.

(2) They shall come into force on the date of their publication in the Official Gazette.

**2. Definitions.-** (1) In these rules, unless the context otherwise requires, -

- (a) “acceptance criteria” means criteria used to express a risk level that is considered acceptable for the activity in question, limited to the high level expressions of risk;
- (b) “accidental loads” means loads which the facility can be subjected to in the event of incorrect use, technical failure or an undesirable external effect;
- (c) “Act” means the Oilfields (Regulation and Development) Act, 1948 (53 of 1948);
- (d) “application for consent” means an application submitted to the competent authority for acceptance;
- (e) “combined operation” means more than one activity such as drilling, production, workover operation, construction, rig move, etc., being undertaken at the same place or in the vicinity at the same time;
- (f) “competent authority” means authority, appointed by the Central Government for implementation of these rules;
- (g) “competent person” means a person who is capable of identifying existing and predictable hazards associated with his area of activities and

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who has authorization to take prompt corrective measures to eliminate them;

- (h) “design load” means characteristic load multiplied by load coefficients;
- (i) “dimensioning accidental load” means accidental load that the facility or a function shall be able to withstand during a required period of time;
- (j) “dimensioning fire” means a fire which in accordance with the defined acceptance criteria represents an unacceptable risk, and which consequently serves as a basis for design and operation of installations;
- (k) “dynamic positioning system ” means a system where power supply, thruster system and control system are assembled and can be operated to maintain the fixed position automatically;
- (l) “employees” means employees of the operator and those of other participants;
- (m) “environmental loads” means loads caused by natural conditions;
- (n) “functional loads” means loads which are caused by physical existence and use of the facility;
- (o) “facilities” means offshore installation, plant, associated pipelines and cables and other equipment for petroleum activities, but does not include supply and support vessels or ships that transport petroleum in bulk;
- (p) “load bearing structures” means those parts of the facility for which the main purpose is transfer of loads;
- (q) “lessee” means the person to whom a mining lease is issued for the purpose of carrying out petroleum operations;
- (r) “licensee” means the person to whom a petroleum exploration license is issued for the purpose of carrying out petroleum operations;
- (s) “offshore installation” means a mobile or fixed installation including any pipeline attached thereto, which is or is to be, or has been used, while standing or stationed in relevant waters with a view to explore or exploit petroleum and natural gas ;

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- (t) “operator” means a person responsible for carrying out the day to day management of petroleum activities on offshore installation, on behalf of the licensee or the lessee;
- (u) “other participants” means all others who participate in the petroleum activities without being the licensee, the lessee, or as the case may be, the operator like contractors, service providers;
- (v) “period of stay” means the continuous period, which an employee spends on facilities;
- (w) “petroleum activities” means the activities related to exploration and exploitation of petroleum and natural gas;
- (x) “pipeline system” means subsea pipelines and risers transporting hydrocarbons and other commodities, with associated safety systems, valves, tool launchers or receivers, manifolds, corrosion protection systems or other accessory equipment;
- (y) “permanently manned facilities” means facilities that are continuously manned, or which are incorporated as a part of an integrated development concept with bridge connections;
- (z) “relevant waters” means territorial waters, contiguous zone, continental shelf and exclusive economic zone of India;
- (za) “risers” means that part of the pipeline system which extends from the subsea pipelines up to the installation including launchers or receivers or tools for internal maintenance or inspection;
- (zb) “safety zone” means safety zone established under Chapter IX of these rules;
- (zc) “Schedule” means the Schedule annexed to these rules;
- (2) Words and expressions used herein and not defined, but defined in the Act shall have the meaning assigned to them in the Act.

## CHAPTER II

### PRINCIPLES RELATED TO HEALTH, SAFETY AND ENVIRONMENT

3. **Safe petroleum activities.-** The licensee, the lessee, or as the case may be, the operator shall undertake the petroleum activities in a safe manner, both in relation to an individual and an overall consideration of all the factors of

importance to planning and implementation of such activities as regards health, safety and environment.

4. **Set up organisation.-** (1) The operator shall set up an organization which is capable of ensuring that the petroleum activities are carried out in accordance with these rules.
- (2) The operator shall ensure and demonstrate that the personnel carrying out work for him in the petroleum activities, have the competence required to carry out such work in a safe manner.
5. **Health, safety and environment friendly culture.-** The operator shall encourage and promote a sound health, safety and environment culture, in all activity areas, in the form of taking of responsibility by everyone who participates in the petroleum activities, including also systematic development and improvement of health, safety and environment.
6. **Health.-** The operator shall provide the health related resources as required during all phases of petroleum activities, and shall ensure that everyone who stays on facilities participating in the petroleum activities, is provided with a sound health service comprising of preventive measures and routine curative services.

### CHAPTER III

#### INFORMATION AND RECORDS

7. **Information and records.-** (1) The operator shall prepare information and records which are considered necessary for the petroleum activities, and any other information specified by the competent authority to ensure that the petroleum activities are planned and carried out in a safe manner and are well documented.
- (2) The operator, on demand, shall make available to the competent authority the information and records in hard copy or electronic form, that clearly show,-
- (a) the issuing authority and the authority approving it in the organization; and
  - (b) the date of approval.
8. **Maintenance of information and records.-** (1) The operator shall maintain information and records in hard copy or electronic form as long as is necessary in the interest of safe petroleum activities including -
- (a) permanent plugging of wells;

- (b) facilities and waste temporarily left on the sea bed;
- (c) accidental pollution incidents and actions taken thereof;
- (d) environment monitoring;
- (e) discharge of oil and chemicals;
- (f) situations of hazard and accident; and
- (g) safety statistics, incident investigation reports and analysis.

(2) The operator shall maintain mapping results showing to what extent employees have been affected by possible health hazardous working environment factors and records of mitigation measures undertaken.

(3) When the petroleum activities are terminated, the competent authority may order that information and records referred to in sub-rule (1), are handed over to them.

**9. Intimation concerning offshore installation.-** (1) The operator of an existing offshore installation, shall within thirty days of the commencement of these rules, intimate the competent authority in Form 1, the date of commencement or cessation of operation.

(2) The operator of a new offshore installation shall, not later than the date on which an offshore installation is due to commence operation in relevant waters, intimate the competent authority in Form 1, the date of such commencement.

(3) Any offshore installation and well left unattended shall be reported to the competent authority without any loss of time.

**10. Oceanographic and meteorological data.-** The licensee, the lessee, or as the case may be, the operator shall ensure that the petroleum activities are based on relevant oceanographic and meteorological data.

**11. Notice of accident.-** (1) The operator shall forthwith intimate the occurrence of -

- (a) an accident causing loss of life or serious bodily injury in connection with offshore operation;
- (b) an explosion;
- (c) a blowout;
- (d) a major fire;
- (e) a bursting of any pipeline or equipment, piping containing hydrocarbon, steam, compressed air or other substance whereby safety of persons is likely to be endangered
- (f) a breakage or fracture or failure of any structure, equipment or system, whereby safety of persons is likely to be endangered;
- (g) any accident due to explosives or radio-active substances;
- (h) a collision of a helicopter or vessel with the installation;
- (i) a helicopter crash;

- (j) a man-overboard;
- (k) a release of hydrocarbon or other noxious substances whereby safety of persons, installation or marine environment is likely to be endangered;
- (l) an uncontrolled movement of vessel or object in sea whereby safety of persons onboard the offshore installation or the installation itself could be endangered; and
- (m) any person present on board an offshore installation or attending vessel or helicopter is found to be missing;

to the competent authority by telephone or fax and shall also within twenty four hours of every such occurrence give notice thereof in Form 2 to the competent authority.

(2) If death results from any injury reported as serious under clause (a) of sub-rule (1), the operator shall within twenty four hours of his being informed about the death give notice thereof to the competent authority in Form 3.

(3) Accidents not falling under sub-rule (1) and near miss incidents shall be reported to the competent authority periodically, every quarter, in Form 2.

**12. Decommissioning plan.-** The licensee, the lessee, or as the case may be, the operator shall submit decommissioning plan to the competent authority including description of -

- (a) risk during and following a possible removal;
- (b) methods intended to be used in the event of a possible removal, including re-floating of the structure;
- (c) analyses planned to be carried out;
- (d) operations planned to be carried out in the event of a possible removal;
- (e) consequences of a possible removal in respect of adjacent fields and facilities;
- (f) other matters of importance; and
- (g) measures, if any, designed to secure the area against possible future pollution from abandoned wells or polluted deposits of cuttings.

#### **CHAPTER IV CONSENT AND INTIMATION**

**13. Design intimation for fixed offshore installation.-** (1) The operator of an offshore installation which is to be established shall prepare a design intimation containing the particulars specified in Schedule I and submit it to the competent authority at such time as will enable him to take into account in the design any

matters relating to health, safety and environment raised by the competent authority within one month of that time.

(2) Where there is a significant change in any of the particulars mentioned in the design intimation prior to the operator submitting application for consent, the operator shall notify the competent authority of that change forthwith.

**14. Application for consent for operation of new fixed offshore installation.-** (1)

The operator of a new fixed offshore installation which is to be established shall submit to the competent authority an application for consent containing the particulars specified in Schedule II.

(2) The operator shall ensure that the fixed installation referred in under sub-rule (1) is not operated unless the competent authority has accepted the application for consent.

(3) The competent authority shall within sixty days of the receipt of the application for consent, convey its consent or require the operator to take specific actions and submit revised application for consent within the period specified by it and if the competent authority does not respond within sixty days of the receipt of the application for consent, the application for consent shall be deemed to have been accepted.

(4) The operator shall submit revised application for consent, confirming therein compliance with the specific actions stipulated by the competent authority in accordance with sub-rule (3) and deviations, if any, with adequate technical justification.

(5) The competent authority shall convey its consent within thirty days of the receipt of revised application for consent.

(6) If the operator fails to submit the revised application as referred to in sub-rule (4), within the period specified in sub-rule (3), the application for consent shall be deemed to have been rejected.

**15. Application for consent for existing fixed offshore installation.-** (1) The

operator of a fixed installation operating in relevant waters before the commencement of these rules, shall within two years of coming into force of these rules, submit an application for consent containing particulars specified in Schedule III to the competent authority.

(2) The competent authority, within ninety days of the receipt of the application for consent, shall,-

- (a) convey its consent; or
- (b) require the operator to take specific actions within the period specified, after taking into consideration the submissions made by the operator as specified in Schedule III.

(3) The operator shall submit his revised application confirming therein compliance with the directions issued by the competent authority under clause (b) of sub-rule (2) and deviations, if any, with adequate technical justification.

(4) The competent authority shall convey its consent within thirty days of the receipt of revised application for consent.

(5) If the operator fails to submit the revised application referred to in sub-rule (3) within a period of six months, excluding the period specified for compliance under clause (b) of sub-rule (2), the licensee, the lessee, or as the case may be, the operator shall be jointly and severally liable to penalties under the Act.

**16. Application for consent for mobile offshore installation.-** (1) The operator of a mobile installation which is to be moved into relevant waters for being operated there, shall submit an application for consent containing the particulars specified in Schedule IV to the competent authority.

(2) The operator shall ensure that the mobile installation referred to in sub-rule (1) is not operated unless the competent authority has accepted the application for consent.

(3) The competent authority shall within fifteen days of the receipt of the application for consent, convey the consent or require the operator to take specific actions and submit revised application for consent within the period specified by it and if the competent authority does not respond within fifteen days of the receipt of the application for consent, the application for consent shall be deemed to have been accepted.

(4) The operator shall submit revised application for consent, confirming therein compliance with the specific actions stipulated by the competent authority in accordance with sub-rule (3) and deviations, if any, with adequate technical justification.

(5) The competent authority shall convey its consent within fifteen days of the receipt of revised application for consent.

(6) If the operator fails to submit the revised application as referred to in sub-rule (4) within the period specified in sub-rule (3), the application for consent shall be deemed to have been rejected.

**17. Application for consent for already operating mobile offshore installation.-** (1) The operator of a mobile installation operating in relevant waters before the commencement of these rules, shall within one year of the commencement of these rules submit an application for consent containing particulars specified in Schedule V to the competent authority.

(2) The competent authority, within sixty days of the receipt of the application for consent, shall,-

- (a) convey its consent ; or
- (b) require the operator to take specific actions within the period specified, after taking into consideration the submissions made by the operator as specified in Schedule V.

(3) The operator shall submit his revised application confirming therein compliance with the directions issued by the competent authority under clause (b) of sub-rule (2) and deviations, if any, with adequate technical justification.

(4) The competent authority shall convey its consent within thirty days of the receipt of revised application for consent.

(5) If the operator fails to submit the revised application referred to in sub-rule (3) within a period of six months, excluding the period specified for compliance under clause (b) of sub-rule (2), the licensee, the lessee, or as the case may be, the operator shall be jointly and severally liable to penalties under the Act.

- 18. Intimation for combined operation.-** Where a fixed installation or a mobile installation is to be engaged in combined operations, the operator shall prepare a comprehensive combined operations procedure document incorporating therein the safety related issues and submit the same to the competent authority, within six months of the commencement of these rules.
- 19. Relocation intimation for production offshore installation.-** The operator of a production installation which is to be moved to a new location, within relevant waters and operated there, shall prepare a relocation intimation containing the particulars specified in Schedule VI and send the relocation intimation to the competent authority at such time as will enable him to take into account any matters relating to health, safety and environment raised by the competent authority within fifteen days of that time.
- 20. Revision and resubmission of application for consent.-** In case of changes in the installation or the process, that can have significant impact on the health, safety and environment, subsequent to acceptance of application for consent by the competent authority, the operator shall revise the application for consent and submit it to the competent authority for acceptance.

## CHAPTER V

### RISK MANAGEMENT

- 21. Risk reduction.-** (1) The licensee, the lessee, or as the case may be, the operator shall select the technical, operational, human resources and organisational solutions which shall reduce the risk to humans, assets and the

environment involved in the petroleum activities and the probability of failures and situations of hazard and accident.

(2) In addition, barriers shall be established which shall -

- (a) reduce the probability of further development of any such failures and situations of hazard and accident; and
- (b) limit possible damage.

(3) Where more than one barrier is required, there shall be no interdependence between the barriers.

(4) The solutions and the barriers that have the greatest risk reducing effect shall be chosen based on an individual as well as an overall risk evaluation.

(5) Collective protective measures shall be preferred over protective measures aimed at individuals.

**22. Barriers.-** (1) The licensee, the lessee, or as the case may be, the operator shall form the strategies and principles on which the design, use maintenance and testing of barriers shall be based, in such a manner that the barrier function is ensured throughout the life time of the facility.

(2) It shall be made known to all concerned what barriers have been established, which function they are intended to fulfil and what performance requirements have been defined which are necessary for the individual barrier to be effective.

(3) It shall be made known to all concerned which barriers are not functioning or have been impaired and the operator shall take necessary actions to correct or compensate for missing or impaired barriers and the operator shall have a system in place involving various decision-making levels with respect to non-functional or impaired barriers.

## CHAPTER VI

### SAFETY MANAGEMENT

**23. General requirements of risk assessment.-** (1) The licensee, the lessee, or as the case may be, the operator shall ensure that risk assessment is carried out, which will provide the necessary basis for taking decisions to give due consideration to health, safety and environment.

(2) When carrying out and updating the assessment, industry recognised models, methods and techniques as appropriate for the purpose and the best available data shall be used.

(3) The assessment shall also be used to set conditions for operation and to classify areas, systems and equipment with respect to risk under various environmental conditions.

(4) The acceptance criteria for major accident risk and environmental risk shall be specified and the competent authority may stipulate risk acceptance criteria for any of the petroleum activities.

(5) The acceptance criteria shall be, *inter alia*, set for -

- (a) personnel on the facility as a whole, and for groups of personnel which are particularly exposed to risk;
- (b) loss of main safety functions as mentioned in rule 77 on main safety functions;
- (c) pollution from the facility or any other environmental threat or damage; and
- (d) damage done to third party.

(6) The operator shall have a complete record of the assessment that is carried out and consistency between assessments that are supplementary to or are based on each other shall be ensured.

**24. Risk assessment and emergency preparedness analyses.-** (1) Risk assessment providing a balanced and comprehensive picture of the risk shall be carried and shall -

- (a) identify situations of hazard and accident, select initiating incidents and map the causes of the incidents;
- (b) carry out modeling of accident sequences and consequences revealing possible dependencies between physical barriers and the requirements that must be set in respect of the performance of the barriers, can be determined;
- (c) classify important safety systems;
- (d) prove that the main safety functions are adequately provided for;
- (e) identify dimensioning accidental loads; and
- (f) provide the basis for selecting the defined situations of hazard and accident.

(2) Emergency preparedness analyses shall,-

- (a) define situations of hazard and accident;
- (b) set performance requirements to the emergency preparedness; and
- (c) select and dimension emergency preparedness measures.

**25. Risk assessment and emergency preparedness analyses with respect to environment.-** Environmentally oriented risk assessment and emergency preparedness analyses shall be carried out by the licensee, the lessee, or as the

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case may be, the operator for individual facility with respect to but not limited to acute pollution and background load.

**26. Working environment analysis.-** Necessary analyses which would identify measures so as to ensure a sound working environment shall be carried out by the licensee, the lessee, or as the case may be, the operator, which shall *inter alia*, contribute to improving the health, well being and safety of the employees by implementation of these measures.

**27. Safety management system.-** (1) The operator shall establish a safety management system which shall be an integral part of the overall management system.

(2) The operator shall -

- (a) ensure that the management of health, safety and environment comprises the activities, resources, processes and the organisation including trained manpower necessary to ensure safe activities;
- (b) ensure that authorities and responsibilities of personnel at various management levels are clearly defined in the safety management system;
- (c) prepare the necessary steering documents and establish reporting lines;
- (d) establish objectives in relation to health, safety and environment and set internal requirements in concrete terms, which contribute to achieving these objectives and if the internal requirements are expressed functionally, criteria of fulfilment shall be established; and
- (e) ensure accordance between his own requirements and the requirements of the other participants.

(3) Situations of hazard and accident shall be investigated, analysed and documented by the operator.

(4) The operator shall establish monitoring parameters within his areas of activity in order to monitor matters of significance to health, safety and environment, including the degree of achieving objectives.

(5) The operator shall establish indicators to monitor changes and trends in major accident risk.

(6) Emergency response plans prepared pursuant to the provisions of Chapter X on emergency response system shall form part of the safety management system.

(7) The safety management system shall ensure that -

- (a) an adequate arrangement of audit of safety management system and for making a report thereof, is established;
- (b) an arrangement for appraisal of adequacy of the safety management system by the operator is established; and
- (c) the recommendations of internal as well as external safety audits, surveys and inquiry committees are followed up for implementation within predetermined time frame.

(8) The operator shall -

- (a) prepare a manual for his safety management system, containing all the relevant information to demonstrate that the requirements as mentioned in the preceding sub-rules are adequately met;
- (b) periodically revise, update and validate the manual; and
- (c) ensure availability of copy of the manual on board the installation.

**28. Follow-up and development of safety management system.-** The operator shall follow up and improve the safety management system in order to ensure compliance with the requirements contained in these rules.

**29. Identification of offshore installation.-** The operator shall ensure that the offshore installation is equipped so as to be readily identifiable on approach by sea or air at all times .

**30. Verification of fitness of offshore installation.-** (1) The operator shall take appropriate measures to maintain the offshore installation in the condition fit for the purpose under foreseeable meteorological, oceanographic, environmental and sea-bed conditions during construction, installation and operation.

(2) The measures referred to in sub-rule (1) shall include -

- (a) an assessment of the design and construction of the installation in relation to the conditions under which it is to be installed and used;
- (b) designing, constructing, installing and maintaining the installation in accordance with recognised standards; and
- (c) maintaining a valid certificate of fitness for the installation.

(3) On the date of commencement of these rules, if an operator does not have a valid certificate of fitness for the existing installation, he shall obtain the certificate of fitness within two years of the commencement of these rules.

(4) No certificate of fitness shall remain valid for more than five years.

(5) In the event of any incident which in the opinion of the competent authority affects the integrity of installation, the validity of such certificate shall be reviewed and the competent authority, if it is of the opinion that it needs a fresh verification, the operator shall conduct such verification.

**31. Information.-** (1) The operator shall identify the information that is necessary to enable planning and conduct of the petroleum activities and to improve health, safety and environment.

(2) The operator shall ensure that the necessary information is acquired, processed and disseminated to concerned users at the right time.

(3) Information and communication systems, which satisfy the need for acquisition, processing and dissemination of data and information, shall be established by the operator.

**32. Offshore Installation Manager.-** (1) The Operator shall ensure that the offshore manned installation is at all times under the charge of Offshore Installation Manager to manage on his behalf the manned installation and the persons on it and the associated unmanned installations;

(2) The Offshore Installation Manager shall be a person -

- (a) having necessary qualification to carry out functions and duties required for compliance with these rules;
- (b) capable of identifying existing and predictable hazards associated with offshore petroleum activities;
- (c) authorized to take prompt and concrete measures to eliminate such hazards; and
- (d) whose identity is notified to, and is accessible to all personnel working on the installation.

(3) The operator shall place at the disposal of the Offshore Installation Manager all resources to enable him to carry out his function and the duties effectively in accordance with the provisions of these rules.

**33. Safety Officer.-** (1) The operator shall ensure that each manned installation has a designated Safety Officer available on board whose task is to carry out and monitor health, safety and environment related work on the manned installation and the associated unmanned installations.

(2) The operator shall ensure that the Safety Officer receives the information and resources that are required to carry out and monitor the preventive safety and environment work referred to in the sub-rule(1).

**34. Safety Committee.-** (1) The operator shall set up a Safety Committee at every manned offshore installation whereby work related safety and health and environment issues can be discussed.

(2) Offshore Installation Manager shall be the head of the Safety Committee and the safety officer responsible for safety functions at offshore installations shall be convener of the committee.

(3) Employees of the operator from various work sections at the installation shall participate in the activities related to Safety Committee.

(4) The functions of the Committee shall be -

- (a) to carry out safety and house keeping inspections of the installation with a view to identify deficiencies and recommend corrective measures ;
- (b) to make suggestions for improvement of safety, health and environment measures; and
- (c) to promote development of safe attitude among employees.

(5) The Safety Committee shall meet at least once in a month.

(6) Mechanism shall be put in place for continuous follow up on the corrective measures suggested by the Safety Committee, from time to time.

**35. Responsibility in respect of contractors and service providers.-** (1) The licensee, the lessee, or as the case may be, the operator shall ensure that the contractors and service providers engaged to execute the contract or provide service in connection with the petroleum activities on offshore installation comply with the provisions of these rules.

(2) The licensee, the lessee, or as the case may be, the operator shall be responsible for taking necessary measures by the contractors or service providers engaged by him to correct any shortcomings in respect of management of health, safety and environment in accordance with these rules.

**36. Verifications.-** (1) The extent of verifications, the method to be used in and the degree of independence of the verification shall be decided in order to document that the requirements of these rules have been complied with.

(2) When it has been decided that verifications are to be carried out, such verifications shall be carried out according to an overall and unambiguous verification programme and verification basis.

(3) The operator shall establish the verification basis for the total petroleum activities after having made an evaluation of the extent of, the method to be used in, and the degree of independence of the verification and shall also carry out an overall evaluation of the results of verifications that have been carried out.

(4) The competent authority may advise the operator to have verifications carried out.

(5) The documentary evidence of compliance of these rules shall be prepared by the operator and provided to the competent authority, when asked for.

**37. Investigation by competent authority.-** (1) The competent authority may, as and when necessary, direct any of its officers, duly authorized on its behalf, to carry out investigation of any offshore installation to verify that the petroleum activities therein are conducted in accordance with these rules.

(2) The operator shall be able to demonstrate compliance of these rules during such investigation.

**38. Transport and offshore stay.-** The operator shall arrange transport for representatives of the competent authority, to and from vessels and facilities, and their stay on board for the purpose of carrying out investigation.

## CHAPTER VII

### HEALTH AND WELFARE MEASURES

**39. Medical fitness of offshore going employees.-** The operator shall ensure that-

- (a) minimum physical efficiency criteria are laid down to maintain and enhance safety standards; and
- (b) only medically fit persons who meet the minimum physical efficiency standards are allowed to work on the installation.

**40. Onboard Medical Officer.-** The operator shall ensure that at each manned installation, depending on its size, a qualified medical officer or a paramedic is available at all times.

**41. Duty of Medical Officer on board.-** It shall be the duty of the medical officer on board to promote good health, and contribute to prevent disease and injury by -

- (a) collection and dissemination of information on such features of the workplace that may affect health;

- (b) ensuring that adequate standards of hygiene are maintained;
- (c) taking appropriate preventive action within his area of responsibility;
- (d) diagnosis and treatment of routine disease and injury, and first aid after accidents;
- (e) incorporation of health emergency preparedness into the general emergency preparedness of the installation, including transport of the sick and injured; and
- (f) taking steps to prevent spread of communicable diseases on the installation.

**42. Medical examination of the employees.-** The operator shall ensure that the employees are offered periodic medical check-up to ascertain any long term effects of working environment causing occupational diseases and take remedial measures.

**43. Measures against toxic emissions and ionizing radiation.-** (1) The operator shall take appropriate measures to -

- (a) ensure safe storage, transport and handling of toxic and radioactive substances in accordance with applicable standards;
- (b) ensure that personnel handling toxic and radioactive substances are adequately trained.

(2) The operator shall take the following measures to protect persons liable to be exposed to toxic emission and ionizing radiation, namely -

- (a) provide information concerning the toxic emission and ionizing radiation and safe methods of protection against exposure to such substances;
- (b) provide personnel protective equipment including respiratory protective equipment for every person who may be exposed to toxic emission and ionizing radiation;
- (c) make arrangements for giving warning of any release of toxic gases or fumes and ionizing radiation by audible or visual alarm system to all person on the installation; and
- (d) establish safe operating procedures and emergency procedures to meet the requirement of these rules.

**44. Food and drinking water.-** The operator shall ensure that,-

- (a) there shall be at all times, availability of provisions of such quality and in such quantity of food, which is adequate to feed and provide all the nutritional needs of all the persons, on an installation.

- (b) adequate potable drinking water meeting requirements of the applicable standards is made available at the installation.

**45. Hours of work and rest.-** The operator shall ensure suitable working hours, rest periods and period of stay of employees for carrying out the work safely.

## CHAPTER VIII

### TRANSPORT AND STAY

**46. Transport.-** The operator shall ensure that persons and supplies are transported safely to, from and between facilities and vessels during all phases of petroleum activities.

**47. Helideck operation.-** The operator shall ensure that -

- (a) a competent person designated to be in control of helideck operations on the manned offshore installation is present on the installation at the time of helideck operations;
- (b) such person carries out appropriate duties before any helicopter lands on the offshore installation or takes off from it;
- (c) such procedures are established and equipment provided, as will secure that landing and take off of helicopters are without risk to safety of the personnel and installation; and
- (d) helicopter is safely parked on the installation.

**48. Stay on facilities.-** (1) The operator shall ensure that there exists at all times a list of all persons on board or on way to or from a facility or a vessel participating in the petroleum activities.

(2) The operator shall ensure that all persons staying on such facilities or vessels shall receive adequate information in accordance with these rules and that they comply with the same.

**49. Accommodation.-** The operator shall ensure that,-

- (a) the number of persons accommodated on a facility shall normally not exceed the number that the facility was designed for.
- (b) when the number of persons to be accommodated on a facility in particular cases where the circumstances so demand, exceed the

number that the facility was designed for, is done in consultation with the safety officer.

- (c) when decision is made concerning the duration and extent of such accommodation, referred to in clause (b), the consequences shall be considered and compensating actions shall be taken to ensure safety and necessary rest and restitution.

- 50. General housekeeping.-** The operator shall ensure that general housekeeping is planned and carried out in such a way that the indoor environment remains hygienic and pleasant all the time.

## CHAPTER IX

### SAFETY ZONES

- 51. Establishment of safety zones.-** (1) The competent authority shall delimit as safety zone any geographical area, around and above the facilities, with the exception of sub sea facilities, pipelines and cables, unless this is considered unnecessary based on a safety evaluation by the competent authority.

(2) Unless otherwise decided by the competent authority, the zone extends from the seabed to maximum five hundred metres above the highest point of a facility in the vertical plane and horizontally extends five hundred metres out from the extremities of the facility, where it may be located at any time.

(3) No unauthorised vessel (including aircraft) shall enter, pass, stay or operate in the safety zone, which has not been granted permission by the operator.

- 52. Specific safety zones established in situations of hazard and accident.-** In the event of situations of hazard and accident which may lead to personal injury or loss of human lives, fire, serious pollution or other environmental damage, major damage to material assets or substantial production stoppage, the competent authority may extend the existing safety zones or establish new zones, to the extent this is considered necessary to prevent or to limit said harmful effects.

- 53. Revocation of safety zones.-** The competent authority shall revoke the safety zones when the conditions warranting their establishment no longer exist.

- 54. Monitoring of safety zones.-** The operator shall monitor all activities inside the safety zones and keep under observation what happens outside the zones when such activity may entail danger to safety of the petroleum activities

- 55. Alert and intimation in connection with entry into safety zone.-** (1) The operator shall alert a vessel about to enter a safety zone when it has no right to enter such area.
- (2) The operator shall alert vessels outside a safety zone if the vessels may constitute a danger to safety of the petroleum activities.
- (3) If an object constitutes a danger to safety of the petroleum activities, the operator shall alert the person responsible for the object, if possible.
- (4) The operator shall alert the concerned agency in the event of situations as referred to in sub-rules (1), (2) or (3), and which constitute a serious danger to safety of the petroleum activities.
- (5) The operator shall in addition, intimate violation of safety zone to the concerned agency and the competent authority.
- 56. Measures against intruding vessels or objects.-** (1) In the event of violation of safety zones and in dangerous situations referred to in rule 55, the operator shall, to the extent possible, refuse entry to vessels or objects.
- (2) If safety zone violation entails serious danger to safety of the petroleum activities, refusal of entry by the operator may consist of physical measures wherever possible.
- 57. Announcement of location of an offshore installation.-** The operator shall, before the establishment or movement of offshore installation, provide necessary information to the concerned agency about the location of the installation.

## CHAPTER X

### EMERGENCY RESPONSE SYSTEM

- 58. Establishing emergency preparedness.-** (1) The licensee, the lessee, or as the case may be, the operator shall prepare a strategy for emergency preparedness against situations of hazard and accident including health emergency
- (2) The emergency preparedness shall be established on the basis of the performance criteria applicable to the barriers, the results from risk assessment and emergency preparedness analyses and risk assessment and emergency preparedness analyses with respect to environment, as laid down in rules 22, 24 and 25, respectively.
- (3) The competent authority may in particular cases stipulate further requirements with regard to the establishment of the emergency preparedness.

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59. **Emergency preparedness organisation structure.-** The emergency preparedness organisation structure shall be of such type which is capable of handling situations of hazard and accident effectively.
60. **Emergency preparedness plans.-** Emergency preparedness plans shall be prepared which at all times describe the emergency preparedness and contain action plans in respect of the defined situations of hazard and accident including health emergency.
61. **Standby vessels.-** The licensee, the lessee, or as the case may be, the operator shall ensure that every offshore installation has access to pre-identified standby vessel at all times and shall fulfil the emergency response requirements besides assisting in warding off intruding vessels.
62. **Co-ordination of emergency preparedness.-** (1) The operator shall manage and co-ordinate with the concerned agencies the operations of the emergency preparedness in the event of accidents and hazardous situations.
- (2) The operator shall conduct table top and live exercises involving the concerned agencies and other participants at least once a year and effectiveness of such exercises shall be closely monitored and reviewed by him to test and validate the emergency preparedness plans.
63. **Co-operation on emergency preparedness.-** (1) The licensee, the lessee, or as the case may be, the operator shall cooperate with other licensee, lessee, or as the case may be operators to ensure necessary emergency preparedness in their areas and for that purpose shall have an agreement among themselves for joint use of emergency preparedness resources.
- (2) The competent authority shall establish regions directing the licensee, the lessee, or as the case may be, the operators within those regions to prepare common emergency preparedness plans and utilizing their emergency preparedness resources.
64. **Handling of situations of hazard and accident.-** It shall be ensured by the operator that the necessary actions are taken immediately in the event of situations of hazard and accident in such a manner that -
- (a) right alert is given immediately;
  - (b) situations of hazard do not develop into situations of accidents and if it does, the combating actions are taken in order to limit harm and pollution, as close to the discharging source as possible;
  - (c) personnel are rescued in situations of accident;

- (d) personnel on the facility are quickly and efficiently evacuated at all times; and
- (e) condition is normalised when the development of a situation of hazard and accident has been stopped, including monitoring and cleanup of the pollution and restoring the environment.

**65. Safety of installation in the event of industrial disputes.-** (1) In the event of closure of, or stoppage of work in, any installation due to any industrial dispute the operator shall implement measures to maintain a satisfactory level of safety.

(2) The operator and the employees, shall be responsible for safety of the installation in the event of closure of, or stoppage of work in, any installation due to any industrial dispute and shall have written procedures in place on -

- (a) how activities are to be wound up and wells secured in accordance with the applicable drilling or well intervention programme, and the functions and positions that will form part of this work; and
- (b) the functions and positions that will form part of safety work after closure has been carried out and completed, and what the contingency safety manning shall do.

(3) The contingency safety manning shall be specified in the general plan for manning of the facility.

**66. Equipment for rescue of overboard personnel.-** (1) The operator shall ensure that facility, at all times, is provided with equipment for quick and cautious rescue of personnel who fall into the sea.

(2) Diving facilities shall, at all times, have requisite equipment to ensure that personnel in diving bells, submerged habitat and submersible crafts can be rescued in an emergency situation.

**67. Life jackets and life buoys.-** (1) The operator shall ensure that adequate number of life jackets and life buoys are available within easy reach on the facility, based on the results from the emergency preparedness analysis.

(2) The operator shall store the life jackets and life buoys in such a way that the quality is not deteriorated.

**68. Communication.-** The operator shall ensure that -

- (a) at all times during installation and operation, as well as in situations of hazard and accident, the necessary internal and external communication and alerts are ensured; and

- (b) a person is designated on board to be responsible for the communication systems' operation on manned facilities.

**69. Muster areas.-** The operator shall make appropriate provision for -

- (a) areas for person to muster safely in an emergency;
- (b) safe egress from accommodation, work areas and temporary refuge and safe access to muster areas, evacuation and escape point;
- (c) adequate emergency lighting and marking by suitable signs of access to muster areas, evacuation and escape point;
- (d) at least two means of egress from accommodation areas situated at an appropriate distance apart, at each level of the installation;
- (e) procedures for mustering at such areas and accounting for persons; and
- (f) alternate muster areas shall be identified for use in case designated muster areas are inaccessible.

**70. Means of evacuation.-** (1) The operator shall make arrangements to carry out quick and effective evacuation of personnel on facilities to a safe area in all weather conditions.

(2) The means of evacuation, their placing and protection shall be in accordance with the risk assessment scheme.

(3) The operator shall use means of evacuation in respect of evacuation to sea such as lifeboats supplemented by life rafts, and means to reach these such as escape ladders.

(4) The operator shall make separate assessment of the need for and selection of equipment for hyperbaric evacuation in respect of saturation diving.

(5) The operator shall ensure that hyper baric evacuation units are of such design which can be towed and lifted out of the water in the weather conditions relevant for the use of such evacuation units.

**71. Arrangement for recovery and rescue.-** (1) The operator shall ensure that effective arrangements are made for -

- (a) recovery of persons following their evacuation or escape from installation ;

- (b) rescue of personnel near installations; and
- (c) taking of such personnel to a place of safety.

(2) The operator shall assist the concerned agencies in search and rescue operations, as and when warranted.

**72. Drills.-** The operator shall ensure that the organisation, arrangements and procedures referred to in the emergency response plan are tested, as often as may be appropriate, and jointly with other participants wherever required.

**73. Reliability and condition of emergency response equipment.-** The operator shall ensure that -

- (a) all equipment on the installation provided for compliance with the emergency response plan are maintained in a reliable state under efficient working order and in good repair;
- (b) there is a proper and suitable written procedure for the systematic examination of all emergency response equipment by a qualified and independent person; and
- (c) the scheme shall -
  - (i) specify nature and frequency of the examination; and
  - (ii) provide for an examination to be carried out, before the first use of the said equipment on the installation and also after any modification or repairs.

## CHAPTER XI

### FACILITIES – DESIGN

**74. Facilities development.-** (1) The licensee, the lessee, or as the case may be, the operator shall ensure that for development of the facilities, the design, engineering and fabrication of the individual facilities shall be such as to enable them to be placed, operated and if applicable removed in a safe and prudent manner.

(2) The provisions referred to in sub-rule (1) shall apply to installations and other equipment necessary to carry out underwater operations from a vessel.

(3) The licensee, the lessee, or as the case may be, the operator shall design and install subsea facilities and pipeline systems in such a manner that the facilities are able to withstand mechanical damage caused by other activities in the vicinity, with a high probability of occurrence.

(4) Facilities shall be used for the purpose for which they are designed and constructed.

**75. Placing of facilities.-** The licensee, the lessee, or as the case may be, the operator shall ensure that the facilities, including wells, are placed at safe distance from other facilities and from objects such as lighthouses, beacons and navigation marks, cables, pipelines and particularly vulnerable environmental resources, etc. based on risk assessment in such a manner that they will not constitute an unacceptable risk to other facilities, activities or the external environment.

**76. Design of facilities.-** The licensee, the lessee, or as the case may be, the operator shall ensure that -

(a) the facilities including physical barriers are designed in such a manner that -

- (i) they can withstand loads;
- (ii) the major accident risk becomes as low as reasonably practicable;
- (iii) failure of a component, a system or one single mistake does not lead to unacceptable consequences;
- (iv) the main safety functions are maintained;
- (v) transport of men and materials, and handling of materials can take place efficiently and safely;
- (vi) provision is made for a sound working environment;
- (vii) operational prerequisites and limitations are duly complied with;
- (viii) there are adequate provisions in place to ensure health and hygiene on board;
- (ix) provision is made for the lowest possible risk of pollution; and
- (x) provision is made for fully satisfactory maintenance.

(b) The areas on the facility shall be classified in such way that design and location of areas and equipment contribute to reducing the risk related to fire and explosion.

(c) Areas where personnel are staying, or where equipment of significance to safety is placed, shall not be within reach of waves with an annual probability greater than the value considered, based on the acceptance criteria

**77. Main safety functions.-** (1) The licensee, the lessee, or as the case may be, the operator shall define the main safety functions unambiguously in respect of each

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individual facility in order to ensure safety for personnel and environment and to limit pollution.

(2) The licensee, the lessee, or as the case may be, the operator shall ensure that the following main safety functions with regard to permanently manned facilities are maintained in the event of an accident situation , namely;-

- (a) preventing escalation of accident situations in such a manner that personnel outside the immediate vicinity of the scene of accident, are not injured;
- (b) maintaining the main load carrying capacity in load bearing structures until the facility has been evacuated;
- (c) protecting rooms of significance to combating accidental events, in such a manner that they are operative until the facility has been evacuated;
- (d) protecting the facility's safe areas in such a manner that they remain intact until the facility has been evacuated; and
- (e) maintaining at least one evacuation route from every area where personnel stay until evacuation to the facility's safe areas and rescue of personnel has been completed.

**78. Safety devices.-** The licensee, the lessee, or as the case may be, the operator shall ensure that -

- (a) facilities are equipped with necessary safety devices which at all times are able to -
  - (i) detect abnormal conditions;
  - (ii) prevent abnormal conditions from developing into situations of hazard and accident; and
  - (iii) limit harm in the event of accidents.
- (b) requirements to performance shall be set in respect of safety devices.
- (c) status of the safety devices shall be available in the central control room.

**79. Plants, systems and equipment.-** (1) The licensee, the lessee, or as the case may be, the operator shall ensure that plants, systems and equipment are designed in such a manner that -

- (a) the possibility of human errors or mistakes is eliminated;
- (b) they or it can be operated, tested and maintained without danger to personnel and with the lowest possible pollution risk; and
- (c) they are or it is suitable for use and capable of withstanding the loads they or it may be subjected to during operation.

(2) Plants, systems and equipment shall be marked in order to provide for safe operation and fully satisfactory maintenance.

**80. Loads, load effects and resistance.-** (1) The loads that may affect facilities or parts of facilities shall be determined in such a manner that accidental loads and environmental loads with an annual probability greater than the value considered, based on the acceptance criteria shall not cause the loss of a main safety function.

(2) When loads are determined, the effects of seabed subsidence above or in connection with the reservoir shall be taken into account.

(3) Functional and environmental loads shall be combined considering worst conditions.

(4) Facilities or parts of facilities shall be able to withstand the design loads and the probable combinations of these loads at all times.

(5) Main load bearing structures shall be designed in such a manner that single component failure or water penetration through outer walls facing the sea cannot lead to unacceptable consequences.

**81. Materials.-** Materials to be used in or on facilities shall be selected, considering the following, namely -

- (a) requirements with respect to loads;
- (b) manufacturing, assembling and construction processes;
- (c) use of material protection, if any;
- (d) fire technical properties;
- (e) probable changes in operational conditions;
- (f) possibilities for reduction of, re-use and recycling of waste;
- (g) employees' health and working environment; and
- (h) possible future removal.

**82. Handling of materials and transport routes, access and evacuation routes.--** (1) Facilities and transport routes shall be designed in such a manner that handling of materials and personnel traffic can take place efficiently and safely.

(2) Handling of materials shall to the extent possible take place by means of mechanical systems and technical appliances.

(3) Evacuation routes shall be designed in such a manner that all evacuation can take place in a simple, quick and safe way.

(4) There shall be at least two evacuation routes from areas with general movements.

**83. Ventilation and indoor climate.-** (1) Ventilation in indoor and outdoor areas shall satisfy the need for air change and provide acceptable air quality.

(2) The ventilation shall furthermore be designed in such a manner that smoke from fires can be controlled, and that flammable gases cannot penetrate into enclosed unclassified areas.

(3) The indoor climate shall be adapted to the individual room with regard to air requirement, draught, humidity and temperature and indoor air shall be free of pollution harmful to health.

(4) Air suction of indoor shall be designed in such a way that it will not suck hydrocarbon or hydrogen sulphide gas in case of release.

**84. Chemicals and chemical exposure.-** (1) Technical solutions which prevent harmful chemical exposure to human beings and the environment, and which reduce the need for use of chemicals, shall be chosen by the licensee, the lessee, or as the case may be, the operator .

(2) When choosing, designing and locating facilities for storage, use, recycling and destruction of chemicals, regard shall be taken of -

- (a) the health and safety of personnel;
- (b) the corrosion and other forms of disintegration of materials;
- (c) the fire and explosion hazard; and
- (d) the pollution risk.

**85. Flammable and explosive goods.-** (1) The licensee, the lessee, or as the case may be, the operator shall ensure that the area for storage of flammable goods and explosives is designed to minimise the consequences of fire and explosion.

(2) Provision shall be made in such a manner that explosives that may constitute a danger, can easily be handled and removed in the event of a situation of hazard and accident.

(3) Explosives shall be secured against unintentional discharge during storage and use.

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- 86. Instrumentation for monitoring and recording.-** (1) Facilities shall be equipped with suitable instrumentation for monitoring and recording of conditions and parameters that may be significant with respect to the integrity of the facility.
- (2) Facilities shall in addition be equipped with instrumentation for recording of environmental data that may be of significance to the petroleum activities.
- (3) The first facility of a new type shall have instrumentation for acquisition of data to verify the calculations.
- (4) Fixed reference electrodes shall be installed on the first facility in areas where the corrosive conditions deviate from areas of past experience.
- 87. Systems for internal and external communication.-** (1) Temporarily or permanently manned facilities shall be equipped with communication systems making internal communication on the facility, as well as between the facility and ships, aircraft and land, possible at all times.
- (2) These facilities shall be equipped with alarm systems (sound and light alarms for various situations of hazards including evacuation) capable of alerting the personnel to situations of hazard and accident at all times.
- (3) There shall be established at least two independent warning methods to shore, preferably by means of permanent communication systems, on permanently manned facilities.
- 88. Communication equipment.-** (1) Equipment for communication shall be chosen on the basis of operational needs, type of activity and defined situations of hazard and accident.
- (2) Communication equipment and associated power supply shall be designed and protected to remain functional in the event of situations of hazard and accident.
- 89. Ergonomic design.-** (1) Work areas and work equipment shall be designed and placed in such way that the employees are not subjected to adverse physical or mental strain as a result of manual handling, work position, repetitive movements, work intensity etc. that may cause injury or illness.
- (2) Workplaces and work equipment shall also be designed and placed in such a way that the probability of mistakes that may be significant to safety, shall not occur.
- (3) Workplaces shall provide for the possibility of individual work positions.
- 90. Man-machine interface and information presentation.-** (1) Screen-based equipment and other technical equipment for monitoring, controlling and running

machinery, plants or production processes, shall be designed in such a way that the probability of mistakes that may be significant to safety, shall not occur.

(2) Information transmitters and operating devices shall be designed, placed and grouped to allow simple and quick reception of necessary information and conduct of necessary actions and the information presented shall be correct and easily understandable.

(3) In the event of incidents, deviations or failures in systems of significance to safety, alarms that stand out clearly from other information shall be given.

(4) The alarms shall be given in such way that they can be perceived and acted on in the period of time required for safe operation of equipment, plants and processes.

**91. Outdoor work areas.-** (1) Outdoor work areas shall have adequate weather protection in such a manner that the danger to health can be minimized and mistakes do not occur.

(2) Weather protection in outdoor areas shall be adapted to anticipated periods of stay, the extent and character of the work, representative weather conditions and risk conditions.

**92. Noise and acoustics.-** (1) Facilities shall be designed in such a manner that no employee is exposed to noise that is harmful to hearing.

(2) Requirements shall be set with regard to noise and acoustics in the individual areas based on the planned manning and the functions to be provided for in the areas.

(3) Noise level and acoustics shall not obstruct communication which is of significance to safety.

(4) The noise level in cabins, rest rooms and recreation rooms shall be reduced as much as possible to contribute to necessary restitution and rest.

**93. Vibrations.-** Facilities shall be designed in such a manner that vibrations will not harm personnel staying on the facility, or will make it difficult for the personnel to carry out important work tasks.

**94. Lighting.-** Lighting shall be of such quality that working environment and safety are adequate in respect of work, movement and restitution.

**95. Radiation.-** (1) Facilities shall be made to prevent exposure to radiation.

(2) Provision shall primarily be made for technical solutions which reduce the need for use of radioactive substances.

(3) Where radioactive substances have to be used, provision shall be made for safe transport, handling and storage of the substances.

**96. Equipment for shifting of personnel.-** (1) Equipment for shifting of personnel shall be designed to ensure safety of personnel that are carrying out activities above normal working height, or that are being shifted by means of such equipment.

(2) Personnel winches shall be such that spooling can be performed safely and be secured against uncontrolled unwinding in such a manner that users cannot fall freely.

**97. Safety signs.-** (1) The operator shall ensure, if it cannot be avoided through technical measures or other arrangements, that employees are subjected to risk of accidents or injury, safety signs shall be installed at those locations.

(2) Safety signs shall be installed at the entrance to rooms and near zones or equipment where the employees may be subjected to risk of accidents or health injury.

(3) Safety signs shall also be prominently displayed in the control room.

(4) Equipment for danger limitation, rescue and evacuation, and the access way to these equipment, shall also be marked with such signs.

**98. Christmas tree.-** The licensee, the lessee, or as the case may be, the operator shall ensure that christmas trees are designed to provide for safe production, re-entry, well intervention and well control.

**99. Production plants.-** (1) Production plants shall be designed in such a manner that the use of chemicals and energy is optimised, and the environmental impact is minimized.

(2) Production plants shall have a control system which provides a stable regulation of the process.

(3) Treatment systems for water produced from wells shall be designed in such a manner that the oil content in each discharge stream meets the stipulation of the Ministry of Environment and Forests.

(4) The discharge point for water produced from wells shall be placed in such a manner that the discharges shall not cause harm to the marine environment.

(5) If there is a risk of ignition, the vessels in the system shall be designed to prevent air from entering.

(6) Production plants comprise of sub sea production plants also.

**100. Pipeline systems.-** (1) The pipeline systems including risers shall be designed in such manner as will ensure its structural integrity under construction, accidental operational and environmental loads.

(2) Risers shall be located in areas away from landing station, crane operations and vessel operations.

(3) In the existing installation where risers are located near landing station, crane operations or vessel operations, either the risers shall be relocated to safe area or protection measures shall be incorporated to reduce the risk.

(4) The pipeline systems shall be designed in such a manner that internal inspection can be carried out.

(5) For the existing pipeline wherein internal inspection is not feasible, the operator shall have pipeline corrosion management programme to ensure integrity of the pipeline.

(6) With regard to flexible pipeline systems and pipeline systems made of a material other than steel, usage factors and, if applicable, load and material factors shall be determined to ensure that the safety level for such systems is not lower than that of pipelines and risers made of steel.

(7) The pipeline shall have required isolation valves, which will operate automatically during leakage and disaster to meet the intended safety functions.

**101. Living quarters.-** (1) The layout and capacity of living quarters shall ensure a fully satisfactory living environment and shall be adapted to the various functions to be provided for, and the anticipated need for personnel during the various phases of the petroleum activities.

(2) The living quarters shall be equipped and furnished in such a manner to enable the maintenance of an adequate standard of hygiene therein.

(3) Emergency quarters on unmanned facilities shall be dimensioned to accommodate the maximum required number of personnel.

(4) With regard to safety and standard of hygiene, adequate requirements shall be met for emergency quarters on unmanned facilities.

**102. Medical room.-** (1) Permanently manned facilities shall have a medical room and shall have the facilities to enable the health personnel therein to perform their duties adequately.

(2) The medical room shall have the required equipment to provide first aid, and adequate medical treatment both on the installation and during the transport of patients.

(3) There shall be a provision for telephone contact between the medical room and land.

(4) There shall be permanent means of internal communications between the medical room and the manned control room.

(5) Such means of communication shall be capable of normal function in the event of general power failure.

(6) In the event of power failure, the medical room shall continue to have adequate working light therein, and at least two emergency power outlets.

(7) There shall be an adequate first aid provision on unmanned facilities.

**103. Facilities for food and drinking water.-** The facilities for food and drinking water shall be designed in such a manner that they fulfill the requirements and shall have the necessary means of ensuring the quality of food and drinking water used on board.

**104. Classification of hazardous area.-** All areas at offshore installations shall be classified into various zones based on the degree of probability of the presence of hazardous atmosphere in such areas.

**105. Electrical systems.-** (1) The electrical systems shall be designed with safeguards and other protection in line with the classification of hazardous area in such a manner that abnormal conditions and failures that may entail a danger to the personnel and to the facility are avoided.

(2) The systems shall be designed with sufficient protection against, *inter alia* -

- (a) electric shock during normal operation and in the event of failure;
- (b) thermal effects;
- (c) overcurrent;
- (d) fault currents;
- (e) overvoltage;
- (f) undervoltage;
- (g) voltage and frequency variations;
- (h) power supply failure;
- (i) ignition of explosive gas atmosphere;
- (j) electromagnetic interference;
- (k) health injury from electromagnetic fields.

- 106. Systems and other equipment for underwater operations from vessels.-** The provisions of these rules shall mutatis-mutandis apply to systems and other equipment for underwater operations.

## CHAPTER XII

### PHYSICAL BARRIERS IN FACILITIES

- 107. Passive fire protection.-** (1) Passive fire protection shall be designed to give relevant structures and equipment adequate fire resistance with regard to load bearing properties, integrity and insulation properties during a dimensioning fire.
- (2) In the design of passive fire protection, the cooling effect from fire-fighting equipment shall not be taken into account.
- 108. Fire divisions.-** (1) The main areas on facilities shall be separated by fire divisions capable of resisting the dimensioning fire and explosion loads and shall at least fulfil the required fire class.
- (2) Spaces with important functions and equipment and spaces with a high fire risk shall be separated from the surroundings by fire divisions.
- (3) Fire divisions shall be designed to resist dimensioning fire and explosion loads in such a manner that the main safety functions are maintained for a sufficient period of time, but always at least one hour.
- (4) Penetrations shall not weaken fire divisions and doors in fire divisions shall be fire resistant and automatic closing type.
- 109. Fire divisions in living quarters.-** Living quarters shall be protected by fire divisions, which at least fulfill the required fire class.
- 110. Fire and gas detection systems.-** (1) There shall be a fire and gas detection system, which ensures rapid and reliable detection of fires and gas leakages.
- (2) The system shall be able to perform the intended functions independently of other systems.
- (3) In case of fire and gas detection, automatic actions, where appropriate, shall limit the consequences of the fire or gas leakage.
- (4) Placing of detectors shall be based on relevant scenarios, hazard analysis, simulations and tests.

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- 111. Emergency shutdown systems.-** (1) There shall be an emergency shutdown system, which is able to prevent situations of hazard and accident from developing and to limit the consequences of accidents.
- (2) The emergency shutdown system shall be able to perform the intended functions independently of other systems.
- (3) The emergency shutdown system shall be designed in such a manner that it will go to or remain in a safe condition in the event of a failure which may prevent the functioning of the system.
- (4) The emergency shutdown system shall have a simple and unambiguous command structure.
- (5) The emergency shutdown system shall be capable of being activated manually either from control room or from release stations located at strategic places on the facility.
- (6) There shall be a provision to activate functions manually from the central control room in such a manner that the facility is brought to a safe condition in the event of failure in the programmable parts of the system.
- (7) Emergency shutdown valves shall be installed which are capable of stopping streams of hydrocarbons and chemicals to and from the facility, and which isolate the fire areas on the facility.
- 112. Process safety systems.-** (1) Facilities equipped with or connected to a processing plant shall have a process safety system.
- (2) The system shall be able to perform the intended functions independently of other systems.
- (3) The process safety system shall be designed in such a manner that it will go to or remain in a safe condition in the event of a failure which may prevent the functioning of the system.
- (4) The process safety system shall be designed with two independent safety levels for protection of equipment.
- 113. Gas release systems.-** (1) There shall be provision for a gas release system at safe distance and height in the facilities equipped with or connected with gas processing plant.
- (2) The gas release system shall prevent escalation of situations of hazard and accident by rapid reduction of pressure in the equipment, and it shall be designed in such a manner that release of gas does not cause injury or harm to personnel or equipment.

(3) The depressurization shall be possible to activate manually from the central control room.

(4) Liquid separators installed in the gas release system shall be secured against overfilling.

**114. Fire water supply.-** (1) Permanently manned facilities shall have fire water supply from fire pumps or other independent supply in such a manner that there is sufficient capacity at all times, even if parts of the supply are inoperative.

(2) The fire water system shall be designed in such a manner that a pressure stroke does not make the system or parts of the system inoperative.

(3) The fire pumps shall start automatically when there is a pressure drop in the fire main and when fire detection has been confirmed.

(4) It shall in addition be possible to start fire pumps manually from the central control room and from the prime mover.

(5) The prime mover for fire pumps shall be equipped with two independent starting arrangements and automatic disconnection devices shall be as few as possible.

(6) Fire water piping shall be designed and located to ensure sufficient supply of firewater to every area on the facility.

**115. Fixed fire-fighting systems.-** (1) Fixed fire-fighting systems shall be installed in hazardous areas and in other areas representing a major fire risk.

(2) The fixed fire fighting systems shall in addition cover equipment containing significant quantities of hydrocarbons.

(3) The fixed fire fighting systems shall be designed in such a manner that fire-fighting can take place quickly and efficiently at all times.

(4) The fixed fire fighting systems shall be automatically activated on signal from the fire detection system.

(5) In areas where gas is used as extinguishing medium, warning systems shall be installed which give warning well before gas is released.

(6) Manual activation of fire-fighting systems shall activate the general alarm of the facility.

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- 116. Manual fire-fighting and fireman's equipment.-** There shall be sufficient manual fire-fighting and fireman's equipment in order to ensure effective fire-fighting of outbreaks of fires and to prevent escalation.
- 117. Life saving appliances.-** The requirement of life saving appliances like breathing apparatus set, workman set etc. on the installation shall be identified and installation equipped accordingly.
- 118. Emergency power and emergency lighting.-** (1) There shall be a reliable, robust and simple emergency power system to ensure sufficient power supply to equipment and systems that must function in the event of a main power failure.
- (2) In the changeover between main power and emergency power it shall be ensured that a cutting off does not entail operational problems to the emergency power consumers.
- (3) The emergency power system shall have as few automatic disconnection devices as possible in order to ensure continuous operation.
- (4) There shall be an emergency lighting system which ensures necessary lighting of the facility if the main lighting fails.
- 119. Drainage systems.-** Drainage systems capable of collecting and drain off oil and chemicals shall be provided in such a manner that the risk of fire, injury to personnel and pollution is minimized.

## CHAPTER XIII

### OPERATIONAL PREREQUISITES

- 120. Pre-surveys.-** The operator shall ensure that prior to placing of the facilities necessary preliminary surveys for safe installation, operation and disposal of facilities are carried out.
- 121. Start-up and operation of facilities.-** (1) The operator shall complete the commissioning process prior to start up of facilities for first time or after technical modifications.
- (2) In addition, at start-up as mentioned in sub-rule (1) and during operation,-
- (a) the management system with associated processes, resources and operational organization shall be established;
  - (b) steering documents, including technical documents for operation, shall be available, in an updated version and the operational personnel shall be acquainted with it.

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- 122. Manning, competence and trainings.-** (1) Adequate manning and competence in all phases of petroleum activities shall be ensured by the licensee, the lessee, or as the case may be, the operator .
- (2) There shall be set minimum requirements to manning and competence in respect of functions where mistakes may have serious consequences in relation to health, safety and environment.
- (3) Each employee shall be given training necessary for safe execution of the work.
- (4) Without prejudice to the generality of the provisions of sub-rules (1) to (3), such trainings shall be given in connection with engagement, transfer or change of employee, introduction of new work equipment or alternations in the equipment and introduction of new technology.
- (5) The training shall be adapted to altered or new risks in the petroleum activities and shall be repeated whenever necessary.
- 123. Practice and exercises.-** The operator shall ensure that necessary practice and drills are carried out in such a manner that the personnel are capable of handling operational disturbances and situations of hazard and accident effectively at all times.
- 124. Procedures.-** (1) The operator shall establish procedures which are to be used as means to prevent faults and situations of hazard and accident.
- (2) The operator shall ensure that procedures are used in such way as to fulfill their intended functions.
- 125. Use of facilities.-** (1) The licensee, the lessee, or as the case may be, the operator shall ensure that the use of facilities and parts of facilities takes place in accordance with requirements stipulated in and pursuant to these rules and possible additional limitations following from fabrication, installation and commissioning.
- (2) The use shall at all times be in accordance with the technical condition of the facility and operational pre-requisites stipulated in the risk assessment.
- 126. Safety systems.-** (1) The operator shall establish before hand the actions and operational limitations required to be imposed in the event of overriding or disconnection of safety systems or parts of such systems, or when the systems are otherwise impaired.
- (2) The status of overriding, disconnections and other impairments shall be known at all times, and recorded.

- 127. Critical activities.-** The operator shall ensure that the critical activities are conducted within the operational limits assumed in the design and in the risk assessment.
- 128. Combined operation.-** (1) The licensee, the lessee, or as the case may be, the operator shall define the activities which in combination with other activities are considered to be combined operation.
- (2) In the event of conduct of combined operation that contribute to a non-acceptable risk increase, necessary actions shall be taken to mitigate the risk to acceptable levels.

## CHAPTER XIV

### PLANNING AND CONDUCT OF ACTIVITIES

- 129. Planning.-** (1) The licensee, the lessee, or as the case may be, the operator shall plan the petroleum activities in such a manner that due consideration is given to health, safety and environment.
- (2) In the planning of activities on the individual facility, the operator shall ensure that important contributors of risk are kept under control, both individually and collectively.
- 130. Actions during conduct of activities.-** (1) The operator shall ensure that the planned activities are cleared from safety point of view before they are conducted.
- (2) The safety clearance shall show which conditions have to be met, including the actions required to be taken before, during and after the work in such a manner that those who participate in or may be affected by the activities are not injured, and the probability of mistakes that can result in situations of hazard and accident shall not occur.
- 131. Permit to work.-** (1) For work, other than the routine non-hazardous work, to be carried out in the safest possible manner, the operator shall ensure that such work is carried out only in accordance with the written instructions (hereinafter called 'work permit') issued by a person authorized by the Offshore Installation Manager.
- (2) The work permit shall specify the place, date, time and duration of such work, the precautions to be taken, the parameters to be monitored during the work and the persons responsible for compliance.

(3) The work permit shall be formally closed after completion of work.

**132. Collection, processing and use of data.-** The operator shall ensure that data are collected, processed and used to -

- (a) monitor and control technical, operational and organizational aspects;
- (b) produce monitoring parameters, indicators and statistics with respect to health, safety and environment;
- (c) verify and document safety and environment compliance with legal requirements
- (d) carry out and follow up analyses during various phases of activities;
- (e) generate generic database; and
- (f) take corrective and preventive actions, including improvement of systems and equipment.

**133. Monitoring and control.-** (1) The operator shall ensure that matters concerning health, safety and environment are monitored and kept under control at all times.

(2) The operator shall ensure that suitable arrangements are made for personnel with control and monitoring functions to be able to get hold of and handle information on such matters efficiently.

**134. Transfer of information.-** In connection with shifts and change of personnel, the operator shall ensure the necessary transfer of information to incoming personnel on the status of safety systems and ongoing activities, as well as other information of importance to health, safety and environment.

## CHAPTER XV

### WORKING ENVIRONMENT FACTORS

**135. Arrangement of work.-** (1) The operator shall ensure that work is arranged in such a manner that the individual employee avoids health hazardous exposure and adverse physical and mental strain, and the possibility of mistakes that can lead to situations of hazard and accident, is avoided.

(2) The operator shall reduce stress factors and risk of injury to health based on objective risk and the risk as perceived by the employees.

(3) The work shall be planned in such a way that the employees are assured necessary rest and restitution.

**136. Noise and vibrations.-**The operator shall take appropriate measures to protect persons from the adverse effect of noise and vibrations.

**137. Ergonomics.-** (1) The operator shall ensure that the work is arranged in such a manner that the employees are not subjected to adverse strain as a consequence of manual handling, work position and intensity, etc.

(2) While carrying out operations from their normal positions and with a good working posture, the employees shall have a view which enables them to make sure that the work can be carried out safely.

**138. Chemical health hazard.-** The operator shall ensure that health detrimental chemical exposure in connection with storage, use, handling and disposal of chemicals and of processes releasing chemical components, is avoided.

**139. Radiation.-** The operator shall ensure that health detrimental exposure during storage, use, handling and disposal of sources giving off radiation is avoided.

**140. Personal protective equipment.-** (1) The operator shall ensure that necessary personal protective equipment are used by the employees.

(2) The operator shall ensure that a written procedure is prepared and implemented for systematic examination and testing of all the personal protective equipment and for recording the results thereof.

## CHAPTER XVI

### DRILLING AND WELL ACTIVITIES

**141. Well programme.-** (1) Prior to starting well activities, a programme shall be prepared by the licensee, the lessee, or as the case may be, the operator which describes the individual activities and the equipment to be used.

(2) The programme shall follow the requirement as laid down in sub-rule (2) of rule 121 on Start-up and operation of facilities.

**142. Well barriers.-** (1) During drilling and other related well activities, there shall at all times be at least two independent and tested well barriers after surface casing is in place.

(2) Well barriers shall be designed in such a manner that unintentional influx, cross flow to shallow formation layers and outflow to the external environment is prevented.

(3) Well barriers shall be designed in such a manner that their performance can be verified.

(4) If a barrier fails, during drilling and other related well activities, no other activities shall take place in the well than those to restore the barrier.

(5) If a barrier fails, during production, to continue production, additional control measures based on risk assessment study shall be introduced during the period the barrier is restored which shall be informed to all concerned and the barrier shall be restored in shortest possible time.

(6) When a well is abandoned, the barriers shall be designed to provide for well integrity for the longest period of time that the well is expected to be abandoned, inter alia in such a manner that outflow from the well or leakages to the external environment do not occur.

**143. Well location and well path.-** (1) Well location and well path shall be chosen on the basis of well parameters of importance, including occurrence of shallow gas, other hydrocarbon bearing formation layers and distances to adjacent wells and it shall be possible to drill a relief well from two alternative locations.

(2) The well path shall be known at all times.

**144. Handling of shallow gas.-** The licensee, the lessee, or as the case may be, the operator shall ensure that the necessary actions are planned including setting of casing above all known shallow gas hazard zones to handle situations of shallow gas or other formation fluids occurrence.

**145. Monitoring of well parameters.-** During all drilling and well activities, drilling and well data shall be collected and monitored to verify the well prognoses, in order that necessary actions may be taken and the well programme may be adjusted if necessary.

**146. Well control.-** (1) Well control equipment shall be designed, installed, maintained, tested and used so as to provide for well control.

(2) In the case of drilling of top hole sections with riser or conductor, equipment with capacity to conduct shallow gas and formation fluid away from the facility, until the personnel has been evacuated, shall be installed.

(3) Floating facilities shall have an alternative activation system for handling of critical functions on the blow out preventer.

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- (4) Accumulator for surface and sub surface well control equipment shall have minimum usable fluid capacity as per industry standards in order to perform closing and opening sequences as applicable to secure the well.
- (5) The pressure control equipment used in well interventions shall have remote control valves with locking devices.
- (6) The well intervention equipment shall have a remote control blind or shear ram as close to the christmas tree as possible
- (7) If well control is lost, it shall be possible to regain the well control by direct intervention or by drilling a relief well.
- (8) An action plan shall be prepared describing how the lost well control can be regained.
- 147. Controlled well flow.-** Operational limitations shall be set in relation to controlled well flow.
- 148. Securing of wells before abandoning.-** (1) All wells shall be secured before they are abandoned in such a manner that well integrity remains intact during the time they are abandoned.
- (2) With regard to subsea completed wells the well integrity shall be ensured if the wells are planned to be temporarily abandoned.
- (3) Radioactive sources are not left behind in the well.
- (4) In case it is not possible to retrieve the radioactive sources and these have to be left in the well, proper abandonment procedure shall be followed as per guidelines of the Department of Atomic Energy, Government of India.
- 149. Compensator and disconnection systems.-** (1) Design of compensator systems shall be based on robust technical solutions so that failures do not lead to unsafe conditions.
- (2) Floating facilities shall be equipped with a disconnection system that secures the well and releases the riser before a critical angle occurs.
- 150. Drilling fluid system.-** (1) The drilling fluid system shall be designed in such a manner that it will mix, store, circulate and clean a sufficient volume of drilling fluid with the necessary properties to ensure the drilling fluid's drilling and barrier functions.
- (2) The high pressure part of the drilling fluid system with associated systems shall in addition have capacity and working pressure to be able to control the well pressure at all times.

(3) Availability of sufficient quantity of drilling fluid weighting material to subdue the well at any time during the drilling operation shall be ensured.

**151. Cementing unit.-** (1) The cementing unit shall be designed in such a manner that it will mix, store and deliver as exact volume as possible of cement with the necessary properties to ensure fully satisfactory anchoring and barrier integrity.

(2) The unit shall be designed in such a manner that remains of unmixed chemicals as well as ready-mixed cement is handled in accordance with applicable environment regulations.

(3) If the cementing unit with associated systems is intended to function as backup for the drilling fluid system, it shall have capacity and working pressure to be able to control the well pressure at all times.

**152. Casings and anchoring of wells.-** Casings and anchoring shall be such that the well integrity is ensured and the barrier functions are provided for throughout the life time of the well.

**153. Equipment for completion and controlled well flow.-** (1) Equipment for completion shall provide for controlled influx, well intervention, backup well barrier elements and plug back activities.

(2) Completion strings shall be equipped with necessary down hole equipment including safety valves.

(3) During controlled well flow, the surface and down hole equipment shall be adapted to the well parameters.

(4) Equipment for burning of the well stream shall be designed and dimensioned in such a manner that combustion residues shall not cause pollution of the marine environment.

(5) It shall at all times, be possible to control the well pressure through the work string and the well flow through the choke manifold.

## CHAPTER XVII

### MAINTENANCE

**154. Maintenance.-** The licensee, the lessee, or as the case may be, the operator shall ensure that the facilities or parts thereof including all machinery and equipment are maintained, in such a manner they are capable of carrying out their intended functions in all phases of their life.

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- 155. Classification.-** (1) The systems and equipment of facilities shall be classified with regard to the health, safety and environment related consequences of potential functional failures.
- (2) With regard to functional failures that may entail serious consequences, the different fault modes with associated failure causes and failure mechanisms shall be identified, and the failure probability in respect of the individual fault mode shall be estimated.
- (3) The classification shall constitute the basis for choice of maintenance activities, maintenance frequency and for the priority of different maintenance activities.
- 156. Maintenance programme.-** (1) Fault modes which constitute a risk to health, safety or environment, shall be systematically prevented by means of a maintenance programme.
- (2) The programme shall comprise activities for monitoring of performance and technical condition, which will ensure that fault modes that are developing or have occurred are identified and corrected.
- (3) The programme shall also contain activities for monitoring and control of failure mechanisms that may lead to such fault modes.
- 157. Specific requirements to condition monitoring of structures and pipeline systems.-** (1) Condition monitoring shall be carried out in respect of new structures during their first year of service.
- (2) With regard to load bearing structures of a new type, data shall be collected for first two years in order to compare them with the design calculations.
- (3) With regard to pipeline systems where fault modes may constitute an environment or safety risk, inspections shall be carried out to map possible corrosion of the pipe wall.
- (4) Parts of the pipeline system where the lay condition or other factors may cause high loads, shall also be checked.
- (5) The first inspection shall be carried out in accordance with the maintenance programme as referred to in rule 156 on maintenance programme, not later than five years after the system has been put into operation.
- 158. Specific requirements to testing of blow out preventer and other pressure control equipment .-(1)** The blow out preventer shall be pressure tested regularly in order to maintain its capability of carrying out its intended functions.

(2) The blow out preventer with associated valves and other pressure control equipment on the facility shall be subjected to a complete overhaul and shall be recertified at regular intervals based on original equipment manufacturer's recommendations and international standards and recommended practises.

**159. Planning and priority of maintenance.-**(1) An overall plan shall be prepared for conduct of maintenance programme and corrective maintenance activities.

(2) There shall exist criteria for giving priority with associated time-limits for the conduct of the individual maintenance activities.

**160. Maintenance effectiveness.-** (1) The effectiveness of maintenance shall be evaluated systematically on the basis of recorded data for performance and technical condition in respect of facilities and parts thereof.

(2) The evaluation shall be used for a continual improvement of the maintenance programme.

## CHAPTER XVIII

### SPECIFIC OPERATIONS

**161. Work on and operation of electrical systems.-** (1) The licensee, the lessee, or as the case may be, the operator shall ensure that electrical systems are designed in accordance with rule 105.

(2) The operator shall ensure that during work on live electrical systems, work near installations connected to an electrical power source, work in or close to earthed and short-circuited installations and during operation of low and high voltage installations, necessary actions including issue of work permit are taken to ensure that those who carry out the work, are not injured, and that the probability of situations of hazard and accident is reduced.

(3) The operator shall designate a competent person to be responsible for the electrical systems of an installation.

**162. Lifting operations.-** (1) The licensee, the lessee, or as the case may be, the operator shall ensure that lifting operations are cleared with respect to safety, and conducted in a safe manner and it shall be ensured, *inter alia*, that personnel do not come under suspended loads.

(2) Lifting equipment and lifting gears shall be periodically inspected, tested and certified.

(3) Everyone participating in lifting operations, shall have access to radio facility and the radio shall be used unless everyone involved can communicate clearly with each other by direct speech.

(4) It shall be ensured that all communication takes place in a clear and unambiguous way and without disturbance.

(5) It shall be also ensured that transfer of personnel by means of lifting appliance shall be carried out in accordance with laid down safety procedures and under supervision of competent person.

**163. Underwater operations.-** (1) Operator shall ensure that management of underwater operations is coordinated with the safety management system for the installation, in such a manner that the probability of mistakes that can result in situations of hazard and accident is avoided.

(2) The licensee, the lessee, or as the case may be, the operator shall ensure that -

- (a) diving safety management system is based on relevant international recognized standards and guidelines and inter alia includes design, inspection, maintenance and testing of diving plant and equipment, training of diving personnel, hazard analysis including collision avoidance, safe practices manual and operational procedures during various stages of diving.
- (b) the emergency procedures for defined situations of hazard and accident including lost bell, trapped divers is established.

**164. Operations involving hydrogen sulphide.-** The licensee, the lessee, or as the case may be, the operator shall ensure that all necessary precautions and measures are taken to protect the personnel from the toxic effects of hydrogen sulphide and to mitigate the damage to environment caused by hydrogen sulphide.

## CHAPTER XIX

### MARINE FACILITIES AND OPERATIONS

**165. Stability.-** (1) The licensee, the lessee, or as the case may be, the operator shall ensure that floating facilities are in accordance with the requirements contained in the applicable standards concerning stability, water tightness and watertight and weather tight closing means on mobile offshore units.

(2) There shall be weight control systems on floating facilities, which shall ensure that weight, weight distribution and centre of gravity are within the design assumptions and equipment and structural parts shall be secured against displacements that can affect stability.

**166. Anchoring, mooring and positioning.-** (1) Floating facilities shall have systems to enable them to maintain their position at all times and, if necessary, be able to move away from the position in the event of a situation of hazard and accident.

(2) Dynamic positioning systems shall be designed in such a manner that the position can be maintained in the event of defined failures and damage to the system and in case of accidents.

(3) During conduct of marine operations, the necessary actions shall be taken in such a manner that the probability of situations of hazard and accident is avoided and those who take part in the operations, are not injured.

(4) Requirements shall be set to maintaining position in respect of vessels and facilities during implementation of such operations, and criteria shall be set for start up and suspension of activities.

**167. Collision risk management.-** (1) The Offshore Installation Manager shall be the overall authority for safe operations within the safety zone of installation.

(2) The licensee, the lessee, or as the case may be, the operator shall ensure that a collision risk management system is implemented and maintained wherein following shall be *inter alia* included -

- (a) suitability of attendant vessels and off take tankers and competence of their crew;
- (b) assessment of probability of collision peculiar to the installation and its location;
- (c) provision of necessary risk reduction and control measures;
- (d) appropriate procedures and communications for managing operations of attendant vessels developed jointly with marine services providers;
- (e) provision of appropriate equipment and procedures for detecting and assessing the actions of vessels intruding into the safety zone;
- (f) provision of competent installation personnel with an appropriate level of marine knowledge;
- (g) provision of appropriate evacuation and rescue procedures and facilities; and
- (h) regular audit and updating of the above systems.

**168. Control in the safety zone.-** (1) The master of the attendant vessel or off take tanker shall comply with instructions of the Offshore Installation Manager when in a safety zone.

(2) The master of the attendant vessel or off take tanker shall be responsible for safety of his crew, the safe operation of attendant vessel or off take tanker and for avoiding collision with the installation or associated facilities.

**169. Operations in rough weather conditions.-** (1) The operator shall ensure safe working in adverse weather and tidal conditions and identify the rough weather conditions when the operations are to be discontinued and evacuations carried out, as required.

(2) The operator shall ensure that transfer of personnel and cargo between the vessel and installation is carried out under safe weather conditions and such transfers should be stopped during adverse or unsuitable weather conditions.

**170. Cargo management.-** The operator shall ensure optimization of cargo trips, from and to the shore, and cargo handling time at installation by efficient planning of cargo supplies through containerization, pre-slinging of cargo etc.

## CHAPTR XX

### MISCELLANEOUS

**171. General duty for safety.-** (1) The employee shall not negligently or willfully indulge in any activity which may be detrimental to health, safety and environment.

(2) The employee shall not negligently or willfully omit to perform his duty which is necessary to safeguard health, safety and environment.

**172. Place of accident not to be disturbed.-** (1) Whenever there occurs in an offshore installation, an accident causing loss of life or serious bodily injury to any person, the operator shall ensure that the place of accident is not disturbed or altered without the consent of the competent authority unless such disturbance or alteration is necessary to prevent any further accident, to remove bodies of the deceased or to rescue any person from danger, or unless discontinuation of the work at the place of accident would seriously impede the working of the installation.

(2) Before the place of accident involving a fatal or serious accident is disturbed or altered due to any reason whatsoever, a sketch or photo or any other evidences available of the site illustrating the accident and all relevant details shall be prepared and kept available for use during investigation of the accident.

(3) A copy of the authenticated sketch shall be submitted to the competent authority along with the notices in Form 2 and Form 3 referred to in rule 11 notifying the accident.

- 173. Penalty for contravention of the rules.-** Whoever fails to comply with or contravenes any of the provisions of these rules or any direction or order issued by the competent authority under these rules, shall, in respect of such failure or contravention, be punished in accordance with the relevant provisions of the Act.
- 174. Direction.-** The Central Government may, by notification in the Official Gazette, direct that any of the powers exercisable by it under these rules, shall be exercised, subject to such general or special conditions, if any, as may be specified therein by such authority or officer as may be specified in the direction.

[File no 21016/1/2006-OR-I(Part)]

L.N.Gupta  
Joint Secretary to the Government of India

## **Schedule I**

**(See rule 13)**

### **Particulars to be included in design intimation for fixed offshore installation.**

1. The name and address of the operator :
2. Name and address of the licensee or lessee :
3. Confirmation that all the relevant provisions mentioned in the rules have been considered in the design :
4. A description of :
  - (a) the design concept, including suitable diagrams.
  - (b) how the chosen design concept will ensure that risks with the potential to cause a major accident are reduced to the lowest level that is reasonably practicable.
5. A general description of :
  - (a) the principal systems on the installation including systems for monitoring and control of hazardous situations.
  - (b) the installation layout.

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- (c) the principal features (including major accident prevention) of pipelines, if any, to be connected to the installation.
  - (d) any hydrocarbon bearing reservoir intended to be exploited using the installation.
6. Particulars of the types of operation, and activities in connection with each operation, which the installation is planning to perform.
7. A general description of the means by which the management system of the operator will ensure that the structure and plant of the installation will be designed, selected, constructed, commissioned, operated and decommissioned in a way which will reduce any risk of a major accident to the lowest level that is reasonably practicable.

## **Schedule II**

**(See rule 14)**

### **Particulars to be included in application for consent for operation of new fixed offshore installation.**

1. The name and address of the operator :
2. Name and address of the licensee or lessee :
3. A description of the extent to which the operator has taken into account any matters raised by the competent authority on design intimation for fixed offshore installation :
4. Confirmation that all the relevant provisions mentioned in the rules have been complied with :
5. Confirmation that environmental clearances and other statutory clearances have been obtained/applied for, to the relevant authorities :
6. Copy of the safety management system document :
7. A general description, with suitable diagrams, of :
  - (a) the structure of the installation and its materials.
  - (b) the plant including the layout and configuration and systems for monitoring and control of hazardous situations.
  - (c) the connections to any pipeline or installation.
  - (d) any wells to be connected to the installation.

8. Particulars of the types of operation, and activities in connection with each operation, which the installation is to be capable of performing.
9. The maximum number of persons –
  - (a) expected to be on the installation at any time, and
  - (b) for whom accommodation is to be provided.
10. A description of (as applicable) :
  - (a) plant and arrangement for control of well operations (including pressure control and prevention of uncontrolled release).
  - (b) major accident prevention measures for pipelines, to be connected to the installation.
11. Description of the life saving appliances and fire fighting arrangement.
12. Detail description of emergency response plans (covering all identified major hazards), pursuant to the rules under Chapter X on emergency response system.
13. Particulars of any combined operations which may involve the installation, including summary of the arrangements in place for co-ordinating the safety management systems and joint review of the safety aspects by the operator and other participants, involved in combined operations.

### **Schedule-III**

**(See rule 15)**

#### **Particulars to be included in application for consent for existing fixed offshore installation.**

1. The name and address of the operator :
2. Name and address of the licensee or lessee :
3. The list of the relevant rules, which are not complied with :
4. Time bound action plan to comply with the rules, as per item 3 :

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5. The rules, as per item 3, which the operator considers infeasible to be complied with, along with detail justification/reasoning, including suggested alternatives/control measures :
  6. Confirmation that environmental clearances and other statutory clearances have been obtained from the relevant authorities :
  7. Copy of the safety management system document :
  8. A general description, with suitable diagrams, of :
    - (a) its plant including the layout and configuration and systems for monitoring and control of hazardous situations.
    - (b) the connections to any pipeline or installation.
    - (c) any wells connected to the installation.
  9. Particulars of the types of operation, and activities in connection with each operation, which the installation is capable of performing.
  10. The maximum number of persons –
    - (a) on the installation at any time, and
    - (b) for whom accommodation is provided
  11. A description of (as applicable) :
    - (a) plant and arrangement for control of well operations (including pressure control and prevention of uncontrolled release).
    - (b) major accident prevention measures for pipelines, connected to the installation.
  12. Description of the life saving appliances and fire fighting arrangement :
  13. Detail description of emergency response plans (covering all identified major hazards), pursuant to the rules under Chapter X on emergency response system :
  14. Particulars of any combined operations which may involve the installation, including summary of the arrangements in place for co-ordinating the safety management systems and joint review of the safety aspects by the operator and other participants, involved in combined operations :

## **Schedule IV**

**(See rule 16)**

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**Particulars to be included in application for consent for mobile offshore installation.**

- 1 The name and address of the operator :
- 2 Name and address of the licensee or lessee :
- 3 Confirmation that all the relevant provisions mentioned in the rules have been complied with :
- 4 Copy of the safety management system document :
- 5 A general description, with suitable diagrams, of :
  - (a) the structure of the installation and its materials.
  - (b) its plant including the layout and configuration and systems for monitoring and control of hazardous situations.
  - (c) the connections to any pipeline or installation.
  - (d) any wells to be connected to the installation.
- 6 Particulars of the types of operation, and activities in connection with each operation, which the installation is to be capable of performing.
- 7 The maximum number of persons –
  - (a) expected to be on the installation at any time, and
  - (b) for whom accommodation is to be provided
- 8 A description of (as applicable) :
  - (a) plant and arrangement for control of well operations (including pressure control and prevention of uncontrolled release).
  - (b) major accident prevention measures for pipelines, to be connected to the installation.
- 9 Description of the life saving appliances and fire fighting arrangement.
- 10 Detail description of emergency response plans (covering all identified major hazards), pursuant to the rules under Chapter X on emergency response system.
- 11 Particulars of any combined operations which may involve the installation, including summary of the arrangements in place for co-ordinating the safety management systems and joint review of the safety aspects by the operator and other participants, involved in combined operations.

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**Schedule V****(See rule 17)****Particulars to be included in application for consent for already operating mobile offshore installation.**

1. The name and address of the operator :
2. Name and address of the licensee or lessee :
3. The list of the relevant rules, which are not complied with :
4. Time bound action plan to comply with the rules, as per item 3 :
5. The rules, as per item 3, which the operator considers infeasible to be complied with, along with detail justification/reasoning, including suggested alternatives/control measures.
6. Copy of the safety management system document.
7. A general description, with suitable diagrams, of :
  - (a) its plant including the layout and configuration and systems for monitoring and control of hazardous situations.
  - (b) the connections to any pipeline or installation.
  - (c) any wells connected to the installation.
8. Particulars of the types of operation, and activities in connection with each operation, which the installation is capable of performing.
9. The maximum number of persons –
  - (a) on the installation at any time, and
  - (b) for whom accommodation is provided
10. A description of (as applicable) :
  - (a) plant and arrangement for control of well operations (including pressure control and prevention of uncontrolled release).
  - (b) major accident prevention measures for pipelines, connected to the installation.
11. Description of the life saving appliances and fire fighting arrangement.

12. Detail description of emergency response plans (covering all identified major hazards), pursuant to the rules under Chapter X on emergency response system.
13. Particulars of any combined operations which may involve the installation, including summary of the arrangements in place for co-ordinating the safety management systems and joint review of the safety aspects by the operator and other participants, involved in combined operations.

## **Schedule VI**

**(See rule 19)**

### **Particulars to be included in a relocation intimation for production offshore installation**

1. The name and address of the operator:
2. Name and address of the licensee or lessee:
3. Changes, if any, in the types of operation, and activities in connection with an operation, at the existing and the new location of the installation.
4. Explanation of why the operator considers the installation suitable for the new location.

## **FORM 1**

### **Intimation concerning Offshore Installation (See rule 9 )**

1. Name and address of the operator :
2. Name and location of offshore installation :  
(longitude/latitude)
3. Name of licensed or leased area in which :  
installation is being or to be used
4. Type of installation (fixed or mobile) :
5. Type of operations :  
(drilling or production or work-over or others)

## 6. Date of commencement of operations

## (i) Existing installations

## (a) Mobile

Date of entry in relevant waters :

## (b) Fixed

Date of commencement of operations :

## (ii) New installations

## (a) Mobile

Date of intended entry in relevant waters :

## (b) Fixed

Date of intended commencement of operations :

## 7. Date of cessation of operations

## (a) Mobile

Date of intended departure from relevant waters :

## (b) Fixed

Intended date of cessation of operations :  
for which the installation was set-up

## 8. Any other information

Signature \_\_\_\_\_

Name \_\_\_\_\_

Designation \_\_\_\_\_

Date \_\_\_\_\_

**FORM 2****Notice of Accident****(See rule 11 )**

Accident Information		
Name of Operator:		
Date of accident :	Time:	Hrs
Accident Location:	Type of Accident:	
Operation at the time of Accident :		
Field Name	Block No.	Name of Installation
Brief details of Accident:		
Immediate action taken:		

**(Tick those applicable)**

No. of persons injured /deceased :	(fill in separate form for each injured/ deceased person)
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Name of injured/ deceased person (first/middle/last):			
Age (in yrs):		Experience (in line/with operator): Yrs / Yrs	
Occupation:		Employer (tick one)	Operator Contractor
Contractor's name:		Shift Information (tick one)	
		morn.	eve night gen
Type of injury:		Injured part of body:	
Injury severity level (tick one) high/medium-high/medium/medium-low/low		Sequence leading to injury:	
Absence of injured person from duty -		No. of	days hours
Dangerous Occurrence (Type of dangerous occurrence):			
Property Damage (Type of Machinery/Equipment):			
Cost of Damage (Rs.):		Percentage of damage to Installation Cost (%):	
Other information as applicable (Please tick mark)			
Sketch	Photo	Preliminary Enquiry Report	Witness

**Accident Analysis (applicable for quarterly reporting)**

Immediate cause:	Basic cause:
Suggested corrective action:	
Review date for corrective action:	

**Near miss Incident (applicable for quarterly reporting)**

Brief details of near miss incident:
Suggested corrective action:

Date and place:	Signature, name and designation:
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**FORM 3**  
**Notice concerning person succumbing to injuries**

**(See rule 11 )**

1. Name of the operator :
2. Name of the offshore installation :
3. Particulars of fatality
  - (i) Date and time of accident :

(ii) Date of submission of notice in Form 2 (enclose copy) :

(iii) Date and time of death :

(iv) Brief description of circumstances leading to death :

Signature \_\_\_\_\_

Name \_\_\_\_\_

Designation \_\_\_\_\_

Date \_\_\_\_\_