

**GUIDELINES TO REGULATIONS RELATING TO CONDUCT OF  
ACTIVITIES IN THE PETROLEUM ACTIVITIES  
(THE ACTIVITIES REGULATIONS)**

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**Petroleum Safety Authority Norway (PSA)  
Norwegian Pollution Control Authority (SFT)  
Norwegian Social and Health Directorate (NSHD)**

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## **CHAPTER I INTRODUCTORY PROVISIONS**

### **Re Section 1**

#### **Systems and other equipment for manned underwater operations from vessels**

The provision makes individual requirements in these regulations applicable also to systems and equipment for conduct of manned underwater operations from vessels. For practical reasons, one has opted for a general section on this, rather than repeating it in the individual provisions.

## **CHAPTER II ARRANGEMENTS ACCORDING TO THE WORKING ENVIRONMENT ACT**

### **Re Section 2**

#### **Co-ordinating working environment committees for fields and joint, local working environment committees for mobile facilities**

The purpose of joint working environment committees is to ensure co-ordination of the individual enterprises' safety and environmental work and to give all employees a genuine opportunity of taking part in and influencing the safety and environmental work at their own workplace, regardless of their employment relationship. Reference is made to the [Working Environment Act Section 7-2](#) and the accompanying [Regulations 29 April 1977 No. 7 relating to safety delegates and working environment committees Section 9](#) with regard to the duties of the joint working environment committee.

The duty to establish joint working environment committees does not reduce the duty of the individual employer to establish a working environment committee at his own enterprise, cf. the [Framework Regulations Section 45](#) on joint working environment committees. The joint working environment committee will be superior to the working environment committees of the individual enterprises in matters related to the sphere of authority of the joint working environment committee.

The term field is carried forward in the new regulations, inter alia to ensure delimitation of the areas that naturally form an entity for such co-ordination.

Co-ordinating working environment committees for fields as mentioned in the first paragraph, should be limited organisationally so that the representation of all main activity areas, familiarity with the local conditions at the workplace and nearness to the work of the committee. If agreement cannot be reached among the operator, the contractors of the various main activity areas and the safety delegates as to establishing a co-ordinating working environment committee that comprises more than one field, cf. the requirement to general agreement as mentioned in the first paragraph, one of the parties may submit the issue to the Petroleum Safety Authority; which, after having considered all aspects of the matter, can decide if such a working environment committee is to be established.

The co-ordinating working environment committee should set up subcommittees for the individual facilities when the committee encompasses several facilities, cf. [Regulations 29 April 1977 No. 7 relating to safety delegates and working environment committees, Section 7](#), No. 2.

The main activity areas mentioned in the second paragraph, mean, inter alia, drilling, well service, catering, construction, maintenance and production. What is to be considered as main activity areas, will depend on the actual activity on the various facilities.

In order to fulfil the requirement to participation as mentioned in the second paragraph, the representatives should come from the principal enterprise and from the largest contractors in the various main activity areas. The employees' representatives should be elected by and among the safety delegates and head safety delegates for the various main activity areas. Two or more trade unions that together organise the majority of the employees in a main activity area may agree that the election shall take place as a proportionate representation election or that these trade unions shall appoint the employees' representatives for the area, cf. [Regulations relating to safety delegates and working environment committees, Section 6](#), No. 5. The co-ordinating working environment committee for the field should have at least one employee representative from each manned facility on the field. The operator's representative on a mobile facility may have status either as an observer or as a representative with voting rights. On the joint, local working environment

committee on mobile facilities a representative of the operator may represent the employer side of contractors that have been hired by the operator.

Co-ordination as mentioned in the last paragraph, means co-ordination of safety and environmentally related matters that are of significance to both mobile and permanently placed facilities on the field.

### **Re Section 3**

#### **Safety and health personnel**

The safety and health personnel as mentioned in the first paragraph, shall have a free and independent position in matters related to the working environment, cf. the [Working Environment Act Section 3-3](#) third paragraph.

For the preventive safety and environment work as mentioned in the first paragraph, reference is made to [regulations 10 September 2009 No. 1173 relating to employers' use of approved company health services, and approval of company health services](#). The approval arrangement of said regulations is administered by the Labour Inspection Authority.

Information as mentioned in the second paragraph, means, inter alia, information regarding factors in the working environment that may have an effect on the employees' safety and health, absence due to illness, industrial accidents and near-misses.

Information as mentioned in the third paragraph, as regards personal affairs, may not be provided by safety and health personnel without the consent of the individual involved, cf. [Regulations related to safety delegates and working environment committees, Section 11](#). This does not apply to information that is necessary in order to avert situations of hazard and accident or severe injuries, cf. the [Working Environment Act Section 5-1](#).

In order to fulfil the requirement to co-operation as mentioned in the fourth paragraph, the operator or the one responsible for the operation of a facility, shall enter into agreements with the principal enterprise and the employers of the contractor employees regarding distribution of the working environment tasks carried out by the safety and health personnel on the facility.

### **Re Section 4**

#### **Provision of medical examinations for employees**

Long-term effects of working environment as mentioned in the first paragraph, mean, inter alia, long-term effects of noise that cause hearing impairment.

Exposure health hazards as mentioned in the fourth paragraph, means, inter alia, exposure to

- a) noise that causes hearing impairment,
- b) isocyanates or air containing lead,
- c) heightened ambient pressure,
- d) asbestos dust, cf. [Regulations relating to asbestos](#) of 16 August 1991, No. 600,
- e) carcinogenic substances.

In order to fulfil the requirement to medical examination, the Norwegian Board of Health's guidelines for medical practitioners in connection with examination of professional divers should be used for participants in manned underwater operations.

### **Re Section 5**

#### **Recording of work hours**

Work hours as mentioned in the first paragraph, mean the actual time worked, which includes both normal work hours and any overtime.

## **CHAPTER III HEALTH SERVICES**

### **Re Section 6**

#### **Availability of the health service**

The health service means the organisation, the personnel and the resources that are necessary in order to attend to the health-related matters in the petroleum activities as mentioned in the [Framework Regulations Section 4](#) on definitions.

When health personnel carry out tasks as mentioned in [Section 3](#) on safety and health personnel, the responsibility, authority and prioritisation of work tasks shall be clearly defined as mentioned in the [Management Regulations Section 10](#) on work processes.

In order to ensure satisfactory services, the rule stating that a medical practitioner shall have a special professional responsibility for the health service on the continental shelf, shall be carried forward. Those medical practitioners that participate in the health service, should have general medical experience and insight.

In those cases where a nurse leaves the facility to accompany a patient to land, the requirement in the third paragraph implies that compensating actions be taken, and that the nurse returns to the facility as soon as possible.

In order to fulfil the requirement to adequate health services as mentioned in the first paragraph, the [NORSOK U-100](#) standard revision 3 Chapter 5.1 should be used for manned underwater operations.

### **Re Section 7**

#### **Duties of the health service**

When performing the duties of this section, the provisions relating to the health personnel's duty of secrecy, duty to report and to keep journals as stipulated in or pursuant to the [Act relating to health personnel](#), shall apply. When a mobile facility that is registered in a national ship's register is laid up, the journals should be stored by the shipping company's health service on land.

The health-related emergency preparedness as mentioned in litera c should, inter alia, include

- a) counselling and professional guidance of the health personnel on a facility or vessel,
- b) communication with other health services,
- c) prioritisation of transport for injured or ill personnel to land.

### **Re Section 8**

#### **Doctor on call**

The requirement of being summoned to the facility on the shortest notice implies that systems must be set up to enable rapid and efficient organisation of helicopter transport.

### **Re Section 9**

#### **Medicinal products and medical equipment**

No comments.

### **Re Section 10**

#### **Dealing with communicable diseases**

The medical practitioner should co-operate with personnel in the municipal health service with regard to following up actions in accordance with the legislation relating to dealing with communicable diseases.

### **Re Section 11**

#### **Food and drinking water**

Production, packing, storage, transport and presentation of food products shall be in accordance with the food legislation that apply to the petroleum activities, cf. the [Petroleum Act Section 1-5](#).

The Ministry of Health and Social Affairs has issued new [general regulations relating to water supply and drinking water](#) for implementation of the Drinking Water Directive, 98/83/EF, incorporated in the EEA Agreement on 25 January 2001. These regulations entered into force 1 January 2001 and also apply to the petroleum activities.

A [guideline to the new drinking water regulations](#) has been prepared.

The Norwegian Board of Health, or the one authorised by them, shall also carry out supervision in accordance with the [Framework Regulations](#) to ensure that the provisions on food products, water supply and drinking water are complied in the petroleum activities.

The duties of the owner of the waterworks according to the Ministry of Health and Social Affairs' [Regulations relating to water supply and drinking water](#), are in the petroleum activities rest with the operator and others that take part in the petroleum activities, cf. the [Facilities Regulations Section 5](#). The responsibility of the operator is limited in comparison with the responsibility of waterworks owners as regards water supply systems that supply drinking water to the water supply system of the operator. It is important to identify what the operator's water supply system encompasses in relation to the land based water supply system.

Reference is made to Chapter II of the Regulations 4 September 1987 concerning potable water systems and potable water supply on mobile offshore units, issued by the Norwegian Maritime Directorate pursuant to the Seaworthiness Act. By adhering to the somewhat more elaborate provisions etc. that are given in the latter regulations, one will also normally fulfil the provisions relating to water supply and drinking water in the [Activities Regulations](#). However, the Norwegian Maritime Directorate's regulations are not legally binding with respect to anything other than facilities that are registered or will be registered in a Norwegian ship's register, cf. Section 2 of the regulations. The provisions of the [Activities Regulations](#) may thus also be fulfilled by other means than those given in the Norwegian Maritime Directorate's regulations.

Reference is also made to the most current, up-to-date guideline related material available from the National Institute for Public Health with regard to how to ensure a safe supply of enough water of adequate quality.

### **Re Section 12 General cleaning**

In connection with planning and conduct of cleaning activities, the NS-INSTA 800 standard should be used, with the following additions:

- a) it is a prerequisite that decisions regarding quality level are made as mentioned in the [Management Regulations Section 8](#) on basis and criteria for decision,
- b) when planning the cleaning, the load in the various areas should, inter alia, be used as a basis. In addition, the health service should take part in the planning. Cf. also [Section 27](#) on planning.

## **CHAPTER IV PRE-SURVEYS AND INSTALLATION**

### **Re Section 13 Pre-surveys**

The following standards should be used in connection with pilot studies:

- a) the [NORSOK N-002](#) standard for **surveying natural conditions**,
- b) the DNV OS-F101 (2007) standard, Section 3, for **route surveys**,
- c) the [NORSOK N-001](#) standard, Chapter 7.9.1, and the [NORSOK G-CR-001](#) standard for **geotechnical surveys**, with the following additions:

- a) a quaternary geological description should be prepared if one is in a new area,
- d) in the event of **shallow gas surveys**, requirements are in place as regards type, degree of coverage and interpretation,
- e) **subsidence** is calculated with the aid of geological models. As such models are associated with significant uncertainty, an upper 90 percentile should be used for the subsidence estimate. Consideration may be given to the stabilising effects of injection of gas or liquids.

If the surveys show that the probability of placing foundations above formations that contain gas is greater than one per cent, another location should be chosen.

In addition to these pilot studies, baseline studies shall also be conducted as mentioned in [Section 51](#) on baseline studies, in order to map the environmental status.

### **Re Section 14 Installation and commissioning**

In order to fulfil the requirements to **installation** as mentioned in the first paragraph, the

- a) DNV OS-F101 (2007) standard Section 10 Paragraphs A through M should be used for pipeline systems made of steel,
- b) API RP 17B guidelines Chapter 11 should be used for flexible pipeline systems.

In order to fulfil the requirements to **commissioning** as mentioned in the second paragraph, the [NORSOK Z-007](#) standard should be used, with the following additions:

- a) the DNV OS-F101 (2007) standard Section 10 Paragraphs N and O should be used for pipeline systems made of steel,
- b) the API 17B guidelines Chapter 11.5.3 should be used for flexible pipeline systems,
- c) the [NORSOK R-003](#) standard Appendix H should be used for lifting equipment, cf. also [Section 40](#) on use of work equipment,



d) the [NORSOK D-001](#) standard, Chapters 4.7 and 5.12.8, should be used for drilling facilities.

In order to fulfil the requirements to **technical condition** as mentioned in the third paragraph, the [NORSOK Z-006](#) standard should be used for preservation.

## **CHAPTER V TRANSPORT AND STAY**

### **Re Section 15 Transport**

No comments.

### **Re Section 16 Stay on facilities**

No comments.

### **Re Section 17 Accommodation**

Particular cases as mentioned in the first paragraph, mean cases when activities are carried out that are necessary in order to restore physical barriers, cf. the [Management Regulations Section 1](#) on risk reduction and [Section 2](#) on barriers, and the [Facilities Regulations Chapter III-III](#) on physical barriers. Cf. also [these regulations Section 27](#) on planning.

## **CHAPTER VI OPERATIONAL PREREQUISITES**

### **VI-I PREREQUISITES FOR STARTUP**

#### **Re Section 18 Start-up and operation of facilities**

The operational organisation as mentioned in the second paragraph litera a, also means the emergency preparedness organisation.

Steering documents as mentioned in the second paragraph, litera b, also means the guidelines, procedures, plans and programmes that are prepared according to these regulations and the [Management Regulations](#).

In order to fulfil the requirement to technical documents for operation as mentioned in the second paragraph litera b, the [NORSOK Z-001](#) standard Chapter 4 and Appendices A, C and D should be used. For drilling and well technical equipment the [NORSOK D-001](#) standard chapter 6 should be used in addition.

### **VI-II COMPETENCE**

#### **Re Section 19 Competence**

The requirement to ensuring competence implies, inter alia, that requirements are set to the necessary competence, that the competence is verified, and that it is maintained through practice, exercises, training and education.

In order to fulfil the requirement to competence in the area of health, working environment and safety

a) the [NORSOK U-100](#) standard revision 3 Chapter 6 should be used for **manned underwater operations**,  
b) the ISO 15544 standard Chapter 8 should be used for **emergency preparedness and safety**, with the following addition:

The Norwegian Oil Industry Association's (OLF's) [guidelines for safety and emergency preparedness training](#) No. 002 revision 16 should be used for safety and emergency preparedness training for personnel on facilities and vessels,

- c) the **NORSOK D-010** standard revision 3 Chapter 4.9 should be used for general competence in **drilling and well activities**. In cases of underbalanced drilling and completion, Chapter 13.7.2 should also be used,
- d) the following regulations should be used for **work on electrical installations**:
- a) the **Norwegian Directorate for Product and Electrical Safety's (now the Directorate for Civil Protection and Emergency Planning's) Regulations 14 December 1993 No. 1133** relating to qualifications for professional electricians, last amended 1 March 2005 No. 190, or the **Norwegian Maritime Directorate's Regulations 9 May 2003 No. 687** concerning qualification requirements and certification rights for personnel on Norwegian ships, fishing and catching boats and mobile facilities are used for personnel on permanently placed facilities,
  - b) the **Norwegian Maritime Directorate's Regulations 9 May 2003 No. 687** concerning qualification requirements and certification rights for personnel on Norwegian ships, fishing and catching boats and mobile facilities are used for personnel on mobile facilities that are registered in a national ship's register,
- e) the **Civil Aviation Authority's regulations of 28 January 2008 no. 81** relating to meteorological services for aviation appendix 3 should be used for weather observers who shall make routine weather observations (METAR),
- f) the **NORSOK R-003** standard Appendix B should be used for **lifting operations**,
- g) the **Norwegian Maritime Directorate's Regulations 9 May 2003 No. 687** concerning qualification requirements and certification rights on Norwegian ships, fishing and catching boats and mobile facilities that are registered in a national ship's register should be used for **marine operations**,
- a) the person responsible for operation of the marine systems on permanently placed, mobile facilities, should fulfil the qualification requirements to comparable positions in the regulations mentioned in litera g of these comments. Control room operators who operate marine systems on such permanently placed, mobile facilities, should fulfil the requirements to certification of control room operators in the same regulations. The person responsible for stability on board, should have maritime competence equivalent to the stability manager in the same regulations,
  - b) in connection with dynamic positioning operations, equipment class 2 and 3, the persons who operate the equipment should have competence in accordance with the Norwegian Maritime Directorate's guidelines and notices for such personnel, cf. **Section 29** on monitoring and control. For operations in equipment class 1, one competent person is sufficient.
- h) in connection with the **use of communication equipment** it should be ensured that the person responsible for communication, cf. **Section 71** on communication second paragraph, is an experienced communication operator with a GOC certificate, as well as the necessary competence in areas such as emergency preparedness management, helicopter communication, meteorological observations and monitoring of the safety zones and sea areas around the facility.

As regards radio operators who operate maritime radio equipment, the competence requirements are specified in the concession terms set by the Norwegian Post and Telecommunications Authority.

As regards certificates as mentioned in the second paragraph, diving certificates issued by authorities in other countries are accepted if they document that the level of education corresponds with that which is recognised by Norwegian authorities. The reference used by the Petroleum Safety Authority, is the "Diving Industry Personnel Competence Standards" 2003, issued by the European Diving Technology Committee (EDTC) in co-operation with the International Marine Contractors Association (IMCA).

### Re Section 20

#### Safety and working environment training according to the **Working Environment Act**

The training as mentioned in the second paragraph, should include aspects that are of significance to the overall workload of the individual, cf. **Section 31** on arrangement of work.

In order to fulfil the requirement to radiation protection training as mentioned in the third paragraph, the training requirements of the Norwegian Radiation Protection Authority should be used.

Employees as mentioned in the fourth paragraph, do not include safety delegates and members of working environment committees.

### Re Section 21

#### Practice and exercises

In order to fulfil the requirements to practice and exercises

- a) simulator training should be used for **monitoring and control functions**,

b) personnel who have **emergency preparedness functions**, should practice their emergency preparedness tasks at least once during the course of each period of stay. Everyone who takes part in emergency preparedness management and regional emergency preparedness, should practice their emergency preparedness functions at least once each year.

An emergency preparedness drill covering all personnel on the facility should be carried out at least once during the course of a period of stay. Mustering and evacuation routines should be included as part of the basis for the drill. At least one exercise should be carried out annually for the emergency preparedness management and for the regional emergency preparedness.

When hired facilities or vessels are used, a drill should be conducted at an early point in time in accordance with a co-ordinated emergency preparedness plan for the contractor and the operator. If the same facility is used for a lengthy consecutive period, a major annual drill should be held involving both unit and area resources, relevant external resources, the operator's and the contractor's emergency preparedness organisations on land, as well as the supervisory authorities,

c) the **NORSOK U-100** standard revision 3, Chapter 9.2, is used for **manned underwater operations**,

d) the **NORSOK D-010** standard revision 3, Chapters 4.2.6, 4.9.1 and 13.7.2, is used for **drilling and well activities**, with the following addition:

regular well control drills should be conducted.

### **VI-III PROCEDURES**

#### **Re Section 22 Procedures**

Procedure as mentioned in the second paragraph, means a specified way of conducting an activity or a process, cf. NS-EN ISO 9000 Chapter 3.4.5.

The formulation of procedures as mentioned in the second paragraph, should be unambiguous, user-friendly and adapted to the users' competence.

The users of the procedures should take part in the formulation and revision of such procedures. The procedures should be tried out before use to check formulation and contents with regard to the intended functions.

In order to fulfil the requirement to procedures as mentioned in the second paragraph, the **NORSOK U-100** standard revision 3 Chapter 8.2 should be used for manned underwater operations.

### **VI-IV PREREQUISITES FOR USE**

#### **Re Section 23 Use of facilities**

Limitations for use as mentioned in the first paragraph, may ensue from the loads that the facility and its individual parts must be able to withstand, cf. the **Facilities Regulations Section 10** on loads, load effects and resistance. The loads may include chemical loads, environmental loads such as waves, wind and temperature and functional loads such as pressure, weight, temperature and vibration.

When conducting drilling and well operations with mobile facilities, the vertical movements of the facility and movements brought about by resonance between the wave frequency and the frequency of the facility itself should be taken into account too, plus movements in case of loss of position because of anchor line breakage or drift, or because of dynamic positioning failure. Cf. the **Facilities Regulations Section 49** on compensator and disconnection systems.

Facilities and parts of these as mentioned in the first paragraph, also include less complex facilities as mentioned in the **Facilities Regulations Section 5** on design of simpler facilities without overnight stay possibility, and temporary equipment.

In order to fulfil the requirement to use as mentioned in the first paragraph, the **NORSOK Z-015N** standard should be used for temporary equipment.

Status as mentioned in the second paragraph, means, inter alia, the lag in preventive maintenance and the outstanding corrective maintenance.

#### **Re Section 24**

##### **Safety systems**

Actions and limitations as mentioned in the first paragraph, may be activity limitations, full shutdown or other actions that compensate for the impairment of safety functions that follows from overriding or interruption.

To fulfil the requirements to actions and limitations as mentioned in the first paragraph, the IEC 61508-1 standard Chapter 7.7 and the IEC 61508-2 standard Chapter 7.6, and [OLF's Guidelines 070](#) revision 2 Chapters 10 and 11 should be used for electrical, electronic and programmable electronic safety systems.

#### **Re Section 25**

##### **Critical activities**

Critical activities may be

- a) work on pressurised, electrified or hydrocarbon service systems,
- b) hot work,
- c) work with explosives or substances that self-ignite,
- d) work that entails risk of acute pollution,
- e) work that entails disconnection of safety systems,
- f) lifting operations, cf. [Section 83](#) on lifting operations.

When identifying important contributors to risk, one should, inter alia, use the results from the risk analyses performed and experience from situations of hazard and accident.

The limitations may be requirements to taking compensating actions in connection with conduct of an activity, or duration or frequency limitations for conducting a special type of activity.

In order to fulfil the requirement to critical activities the [NORSOK D-010](#) standard revision 3 Chapters 4.5.1 and 4.5.3 should be used for drilling and well activities.

#### **Re Section 26**

##### **Simultaneous activities**

Activities as mentioned in the second paragraph, may be production activities, drilling and well activities, and maintenance and modification activities, including activities as mentioned in [Section 25](#) on critical activities.

Actions as mentioned in the second paragraph, may be limitations or prohibitions that are to be implemented in connection with certain types of simultaneous activities during start-up, operation and shutdown.

In connection with the conduct of activities as mentioned in the second paragraph, the effect of mutual dependence between different activities should, inter alia, be taken into account.

In order to fulfil the requirement to simultaneous activities, the [NORSOK D-010](#) standard revision 3 Chapter 4.5 should be used for drilling and well activities.

### **CHAPTER VII**

#### **PLANNING AND CONDUCT OF ACCTIVITIES**

#### **Re Section 27**

##### **Planning**

The requirement to planning as mentioned in the first paragraph, implies, inter alia, to ensure that the activities are conducted within the limitations mentioned in [Chapter VI-IV](#) on prerequisites for use.

#### **Re Section 28**

##### **Actions during conduct of activities**

In order to fulfil the safety clearance requirement, a work permit system should be used.

When activities are cleared in accordance with this section, a job safety analysis should be conducted when sub-activities are not covered by procedures, the procedures may conflict with each other, or the activities are new to the personnel involved.

In order to fulfil the requirements to measures the [NORSOK D-010](#) standard revision 3 Chapters 4.10.3, 8.3 and 8.7 should be used for drilling and well activities upon handover of wells between units, with the following additions:

the barrier status of the wells should be tested and verified.

As regards conducting job safety analyses, the ISO 17776 standard, Appendix B.4, and the [NORSOK standard S-002](#) revision 4 Chapter 4.4.3 should be used in the area of health, safety and working environment. With regard to conducting a job safety analysis, see the last paragraph in the above-mentioned Appendix B.4, the person responsible for carrying out the work and the workers who are to carry it out, should participate, possibly also the persons responsible for the system and area.

Handover of wells between units means handover between production, well service, operation, maintenance etc.

### **Re Section 29 Monitoring and control**

Matters as mentioned in the first paragraph, may be conditions and parameters as mentioned in the [Facilities Regulations Section 16](#) on instrumentation for monitoring and recording and [Section 32](#) on the emergency shutdown system last paragraph, status of other safety systems, ongoing activities and implemented compensating measures.

The requirement to continuous monitoring as mentioned in the first paragraph, implies that personnel are not ordered to conduct tasks that may impair the control and monitoring functions, cf. also the [Facilities Regulations Section 20](#) on man-machine interface and information presentation and the [Management Regulations Section 17](#) on analysis of the working environment.

For monitoring and control as mentioned in the first paragraph, there should be at least two persons to handle the monitoring and control functions as mentioned in the third paragraph,

- a) in the central control room on permanently manned facilities,
- b) for operation of equipment for dynamic positioning, Classes 2 and 3,
- c) for drilling and well activities.

To fulfil the requirement to monitoring and control as mentioned in the first and second paragraphs, the [NORSOK U-100](#) standard revision 3 Chapters 8.3 and 8.5.1 should be used for manned underwater operations.

For monitoring and control of the external environment, see [Section 49](#) on co-operation on and planning of monitoring of the external environment.

### **Re Section 30 Transfer of information**

Shift and crew change means daily shift changes and change of personnel at the end of the period of stay on the facility, both for operator and contractor employees.

## **CHAPTER VIII WORKING ENVIRONMENT FACTORS**

### **Re Section 31 Arrangement of work**

The arrangement as mentioned in the first paragraph, should, inter alia, take into account the need for individual adaptation, including capacity for work and age. Cf. also the [Facilities Regulations Chapter III-II](#) on design requirements to work areas and accommodation spaces, and the [Management Regulations Section 18](#) on collection, processing and use of data, and [Section 17](#) on analysis of the working environment.

To avoid exposure that is hazardous to health as mentioned in the first paragraph, actions or solutions should be selected at the highest of these levels:

- a) elimination of the causes of the exposure,
- b) technical actions that reduce the probability of exposure,
- c) technical actions that reduce exposure,
- d) operational actions that reduce exposure.

The arrangement as mentioned in the first and second paragraph, should be a continuous process where both employers and employees seek to improve the working environment, cf. also the [Management Regulations Section 22](#) on improvement.

The requirement to do as much work as possible daytime as mentioned in the third paragraph, implies, inter alia, that night work should be limited to tasks and functions that are necessary in order to maintain prudent activities.

The requirement to necessary restitution and rest as mentioned in the third paragraph, implies, inter alia, that all personnel are allowed to sleep undisturbed and normally alone, cf. also [Section 17](#) on accommodation, and that necessary transport during the period of stay, including helicopter transport, takes place during working hours. The purpose of the provision is to prevent unfortunate developments whereby the employee is not assured of sufficient restitution and rest, which could have safety related consequences.

### **Re Section 32**

#### **Ergonomic aspects**

In connection with the arrangement as mentioned in the first paragraph, the [NORSOK S-002](#) standard revision 4 Chapters 5.1 and 5.2 (the principles and the arrangement part) should be used.

For work at computer screens as mentioned in the third paragraph, the Directorate of Labour Inspection's Guidelines for work at computer screens should be used.

### **Re Section 33**

#### **Psychosocial aspects**

Aspects as mentioned in the first sentence, may be

- a) requirements to efficiency and workload in relation to the resources available for conducting the work tasks,
- b) the work's complexity in relation to competence and resources,
- c) opportunities for variation and stimulation in the job,
- d) opportunities for independence and influence on important decisions,
- e) opportunities for career development and exploitation of own competence,
- f) climate of co-operation, handling of disagreements, conflicts and harassment,
- g) work management, including feedback and follow-up in the daily work,
- h) night work and working alone.

### **Re Section 34**

#### **Chemical health hazard**

In order to avoid exposure as mentioned in the first paragraph, the Directorate of Labour Inspection's

a) Administrative standards for pollution of the working atmosphere should be used, with the following additions:

in order to correct the standard vis-à-vis a work period of twelve hours, a safety factor of 0.6 should be used. For persons who work under heightened pressure, a safety factor of 0.2 should be used, except for CO and CO<sub>2</sub>. For these gases the [NORSOK U-100](#) standard revision 3 Chapters 5.2.3.2 and 5.2.3.3 should be used. In addition, special consideration should be given to potential release of chemical substances that are detrimental to health from materials under high pressure,

b) [Regulations relating to welding, thermal cutting, thermal spraying, carbon arc gouging, soldering and grinding](#) should be used,

c) orientation regarding the production and use of polyurethane products (isocyanates) should be used.

The earlier Regulations relating to asbestos, which were made applicable to the petroleum activities through the [Framework Regulations Section 57](#) on regulations second paragraph, have been repealed and replaced by new Regulations relating to asbestos, issued by the Directorate for Labour Inspection. [The new regulations](#) have been made applicable to the petroleum activities through the fifth paragraph.

### **Re Section 35**

#### **Radiation**

Radiation means ionising and non-ionising radiation.

Handling also means handling in situations of hazard and accident.

To fulfil the requirement to avoiding exposure, the Norwegian Radiation Protection Authority's

- a) conditions for radiation protection in connection with industrial radiography,
- b) conditions for radiation protection in connection with well logging,
- c) industrial control sources in permanent facilities,
- d) radiation protection provisions for use and handling of open radioactive sources,
- e) deposits of naturally radioactive substances in oil and gas production

should be used.

**Re Section 36  
Noise and vibrations**

No comments.

**Re Section 37  
Outdoor work**

To fulfil the requirement to criteria, the [NORSOK S-002](#) standard revision 4 Chapter 5.8, should be used, see Chapter 4.4.9 for the principles and the arrangement part.

**Re Section 38  
Safety signs and signalling at the workplace**

No comments.

**Re Section 39  
Personal protective equipment**

No comments.

**Re Section 40  
Use of work equipment**

See [also Section 19](#) on competence and [Section 20](#) on safety and working environment training according to the [Working Environment Act](#).

**Re Section 41  
Information on risk during conduct of work**

No comments.

**CHAPTER IX  
MAINTENANCE**

**Re Section 42  
Maintenance**

Maintenance means the combination of all technical, administrative and managerial actions during the life cycle of an item intended to retain it in, or restore it to, a state in which it can perform the required functions, cf. definition 2.1 (with associated terminology) in the standard NS-EN 13306.

Maintenance encompasses, inter alia, activities such as monitoring, inspection, testing and repair, and keeping things tidy.

Functions also means the safety functions, cf. the [Facilities Regulations Section 1](#) on definitions. For these functions, the maintenance requirement implies that the performance shall be secured at all times, cf. the [Facilities Regulations Section 7](#) of on safety functions.

Facilities or parts of facilities also means temporary equipment.

All phases also mean periods in which the facility or parts of the facility are temporarily or permanently shut down.

**Re Section 43  
Classification**

To fulfil the classification requirement, the [NORSOK Z-008](#) standard should be used in the area of health, working environment and safety.

Fault mode, failure cause and failure mechanism as mentioned in the second paragraph, are defined in the NS-EN 13306 standard.

**Re Section 44  
Maintenance programme**

The maintenance programme may consist of sub programmes for inspection, testing, preventive maintenance and the like, cf. [Section 42](#) on maintenance.

The requirement to prevention as mentioned in the first paragraph, also entails that the programmes shall be available at start-up, cf. [Section 18](#) on start-up and operation of facilities, second paragraph, litera b.

When preparing the maintenance programme as mentioned in the first paragraph, the standard NS-EN ISO 20815:2008 appendix I and the CEI/IEC 60300-3-11 standard may be used in the area of health, working environment and safety. For activities as mentioned in the second and third paragraphs, in the area of health, working environment and safety,

a) the ISO 13702 standard Appendix C7, the IEC 61508 standard, and [OLF Guidelines No. 070](#) revision 2 should be used for **safety systems**,

b) **the emergency shutdown system** should be verified in accordance with the safety integrity levels stipulated on the basis of the IEC 61508 standard and [OLF's Guidelines 070](#) revision 2.

For plants that are not encompassed by this standard and these guidelines, the operability should be verified through a full-scale function test at least once each year. The test should cover all parts of the safety function, including closing of valves. The test should also include measurement of interior leakage through closed valves. Recording of the plant's or equipment's functionality in situations where the function is triggered or put to use may replace testing of the plant or the equipment,

c) the [NORSOK N-005](#) standard should be used to monitor the condition of **structures**. See also [Section 47](#) on specific requirements to condition monitoring of structures and pipeline systems,

d) the [NORSOK Z-006](#) standard should be used for **preservation**,

e) condition monitoring should be carried out at least once each year of **risers with support** and other particularly vulnerable parts of the pipeline system. Where there are multiple pipeline systems with identical properties for use, this monitoring may be performed on a representative selection,

f) the [NORSOK R-003](#) standard, Appendix G, should be used for control of **lifting appliances and lifting gear**,

g) the [NORSOK D-010](#) standard revision 3, Chapters 4.2.3, 4.2.4 and table 15.9, the ISO 10417 standard and the ISO 10423 standard Chapter 9 should be used for **well control and well intervention equipment, subsurface safety valves and christmas trees**, with the following additions:

the requirement in the [regulations](#) third paragraph also comprises the condition of barrier elements and the pressure integrity in wells,

h) the IEC 61892 standard should be used for **electrical installations with associated equipment**.

The DNV RP G-101 guidelines may be used to establish the inspection programme for **process plants and auxiliary systems**.

#### Re Section 45

##### Planning and priorities

In order to fulfil the requirement to time-limits as mentioned in the second paragraph, the time-limits should be calculated from the time when a fault mode is identified as having occurred or is developing.

#### Re Section 46

##### Maintenance effectiveness

Maintenance effectiveness as mentioned in the first paragraph, means the ratio between the requirements stipulated for performance and technical condition and the actual results.

When recording data as mentioned in the first paragraph, including failure data and maintenance data, the standards NS-EN-ISO 14224:2006 and NS-EN-ISO 20815:2008 appendix E should be used. Cf. also the [Management Regulations Section 18](#) on collection, processing and use of data.

#### Re Section 47

##### Specific requirements to condition monitoring of structures, maritime systems and pipeline systems

In order to fulfil the condition monitoring requirement as mentioned in the first paragraph, the [NORSOK N-005](#) standard should be used in the area of health, working environment and safety. Floating facilities which will be inspected and maintained at sea without regular dry docking, should fulfil DNV OSS-102 chapter 2 section 3 H100.

The examinations as mentioned in the fourth paragraph, should be carried out with, in particular, projected new facilities and use of facilities extending their originally planned lifetime in mind.

Fault modes as mentioned in the third paragraph, means both external and internal fault modes.

In the event that fault modes are discovered as mentioned in the third paragraph, the DNV RP F-101 guideline should be used if the fault mode is a consequence of the failure mechanism corrosion.



### Re Section 48

#### Specific requirements to testing of blow out preventer and other pressure control equipment

In order to fulfil the requirement to testing, complete overhaul and recertification so that the equipment is able to fulfil its intended functions, the [NORSOK D-010](#) standard revision 3 Chapters 4.2.3.4 and 4.2.3.5 plus tables 15.4, 15.14, 15.19, 15.21, 15.32, 15.37, 15.38 and 15.47 and Annex A, Table A.1, plus DNV RP-E101 should be used. See [Section 44](#) on maintenance programme when it comes to this type of equipment used in well intervention and maintenance of sub sea wells.

Complete overhaul and recertification as mentioned in the second paragraph, may be carried out continuously and in a manner which ensures that single components and the whole unit will be overhauled in a rolling five year period.

## CHAPTER X MONITORING OF THE EXTERNAL ENVIRONMENT

### X-I MONITORING OF THE EXTERNAL ENVIRONMENT

#### Re Section 49

#### Cooperation on and planning of environmental monitoring

The operator shall monitor the external environment as mentioned in [Framework Regulations Section 27](#) on duty to monitor the external environment. This chapter contains complementary provisions on how to implement the monitoring.

The baseline surveys and environmental impact assessments will together with an overview of discharges form the basis for planning and implementation of environmental surveys.

The cooperation requirement as mentioned in the first paragraph, implies that several operators cooperate so that the monitoring activities are managed in relation to regional risk, the overall content is emphasised and provisions are made for using the best available technology (BAT).

The requirement to cooperate in defined regions as mentioned in the first paragraph, implies that there must be agreements between operators that have partly or completely identical areas of impact for pollution from their own activities. The regions may be identical to the geographic scope of the cooperation agreements. Regions for environmental monitoring of operational discharges are described in the Guidelines for environmental monitoring of the petroleum activities on the Norwegian continental shelf.

For monitoring and control regarding prudent conduct of activities with respect to health and safety, see [Section 29](#) on monitoring and control.

It is vital that the monitoring is conducted in accordance with a defined framework to secure comparable results from one year to another, and between different regions. The requirements to analysis must be seen in connection with the international requirements on reporting.

Environmental monitoring offshore includes both monitoring of the sediments and monitoring in the water column. The purpose of the environmental monitoring offshore is to get:

- an overview - and control of pollution from the offshore activity, including environmental impacts
- an overview of the general condition and development around the various facilities and in the regions (trends).

The results from the monitoring will, among other things, be used for:

- evaluation of the risk for environmental damage and ecological effects
- verification of models for calculating the environmental risk as a function of the existing and expected discharges from the offshore industry
- verification of laboratory based research.

It may also be relevant to monitor areas in the littoral zone and onshore if these areas are affected by the offshore activity.

The environmental monitoring may, in the same way as the operators' other activities, be audited by the Norwegian Pollution Control Authority. This applies to all stages of the activities, from the planning of the surveys through to the various operators' internal use of the results.

Guidelines for the environmental monitoring of the petroleum activities on the Norwegian continental shelf shall provide the operator with a guide for a standardised way of carrying out the surveys, thus making it possible to compare results from year to year and between various regions. The guidelines cover the most important surveys that the operators must carry out, and the operators themselves must decide whether there is need for additional or other surveys on the individual field or in the region. Any deviation from the standard station grid that have been used in previous surveys or given in the guidelines, shall be justified in the programmes for the environmental surveys.

The monitoring results shall provide data to be used as a basis for decisions on necessary actions to be taken offshore. The results will also be used for calculating national environmental indicators, and will be reported in accordance with international treaties, including OSPAR.

In order to get an optimum description of the conditions around the individual facilities and in the region, it is important that the monitoring programmes are designed in the light of the existing discharge situation. This means that the operators at the planning stage must consider and include relevant compounds in the monitoring programme, as necessary, based on what is discharged on the individual field and in the region. Such an evaluation requires that the monitoring, discharge reporting and defined challenges from the Environmental Impact Assessments be seen as a whole.

#### **Re Section 50**

##### **Remote measurement of acute pollution**

Moved, since section 50 has been moved to section 52 d.

#### **Re Section 51**

##### **Baseline surveys**

The scope of baseline surveys as mentioned in the first paragraph, may be adjusted to the need for obtaining new knowledge.

The scope of the surveys as mentioned in the first paragraph, litera b, depends, inter alia, on which particularly vulnerable environmental resources (species and habitats) that may be expected in the area. Particularly vulnerable environmental resources may include coral reefs, spawning grounds, marine mammals, birds and beaches.

#### **Re Section 52 a**

##### **Environmental monitoring of sea bed habitats**

Collected, the monitoring of the sea bed habitats shall contribute to explaining whether a station or a bigger area around the individual facility or in a region is affected by discharge from the activities. The results from the environmental monitoring must be such that they can be used to check the conclusions of the impact assessment (IA) for the individual field and for the region. The relation between IA, actual discharges and environmental monitoring shall be emphasised.

A normal frequency for environmental monitoring is every three years. The guidelines may allow for lower frequency, based on pollution loading, history and regional knowledge.

Since 1997 Norway has used the terms “reference stations” and “regional stations” in connection with monitoring of the sea bed on the Norwegian continental shelf. Both types of stations usually cover the background level of selected components in the area, and the reference stations may, in certain cases, function as regional stations and vice versa. Reference stations and regional stations in one and the same region are used to calculate the background level in the regions.

The term reference stations is now discontinued, and all non field specific stations are called regional stations in the new Guidelines for environmental monitoring of the petroleum activities on the Norwegian continental shelf.

#### **Re Section 52 b**

##### **Environmental monitoring of the water column**

For monitoring of biological effects in the water column few internationally accepted standardized methods currently exist. A number of methods, however, are under development. The methods have, to a certain extent, been tested in the field. This primarily applies to various biomarkers. Up to the present the methods that give the most reliable information about the condition in the environment, are measurement of the concentration levels. The measurement of concentration levels in selected organisms will, until standardized

methods for the regional impact monitoring are established, be a key element of the environmental monitoring around the petroleum facilities on the Norwegian Continental Shelf. The operators shall participate actively in the testing and development of suitable methods for detecting pollution and environmental effects in the water column. The Norwegian Pollution Control Authority shall be consulted at essential checkpoints of the process. As the methods regarding detection of the impact at this stage are still under development and being tested, the guidelines will be regularly revised.

**Re Section 52 c**  
**Reporting of monitoring results**

No comments.

**Re Section 52 d**  
**Remote measurement of acute pollution**

Remote measurement means a system that, independent of visibility, light and weather conditions, can discover and map positions and extent of pollution on the surface of the sea. Such a system may consist of satellite-based and/or aircraft-based active sensors in combination with passive sensors in aeroplanes, helicopters, on the facility or vessel during periods when visibility and light conditions make this possible.

The purpose of the remote measurement is to ensure that the information concerning the pollution is sufficient, so that the correct actions are taken in order to stop, limit and map the pollution.

The system for discovering acute pollution should consist of

- a) procedures and systems for visual observation and notification from facilities, vessels and aircraft,
- b) procedures for interpretation of monitoring data from the various available sensors,
- c) modelling tools to predict transport and spread of acute pollution,
- d) procedures for quantifying oil and chemicals with the aid of area measurement and colour thickness maps for the relevant types of oil and chemicals,
- e) other meteorological services that are necessary in order to support the remote measurement,
- f) systems for detection of pollution in the recipients.

In order that the remote measurement system shall discover significant pollution as mentioned in literas a through f, the area surrounding the facility should be subjected to remote measurement on a regular basis. There should be a plan for remote measurement based on an environmentally oriented risk analysis, cf. the [Management Regulations Section 16](#) on environmentally oriented risk and emergency preparedness analyses.

**Re Section 52 e**  
**Environmental surveys in case of acute pollution**

Follow-up surveys mean chemical and biological surveys both during and after acute pollution. It should be possible to utilise the results of such surveys both during the combat phase with regard to evaluation of relevant actions for optimal combating of the pollution, and in the restoration phase with regard to identification of resources that have been harmed. Such surveys may require special instrumentation and technical measuring equipment, particularly in the event of underwater discharges for surveys in the water column.

Principles for surveys after acute pollution are described in the Norwegian Pollution Control Authority's Guidelines 99:05 relating to follow-up surveys after acute oil pollution in marine environments, which provides specifications for such surveys.

These guidelines will be revised in 2010 and replaced with Guidelines for environmental surveys following acute oil spills in a marine environment.

**Re Section 53**  
**Follow-up surveys**

Removed, since the requirement has been repealed.

**Re Section 54**  
**Characterisation of oil and chemicals**

Characterisation as mentioned in the first paragraph, means collection of chemical and physical survey and analysis data as a basis for dimensioning of emergency preparedness for acute pollution. In addition to

weathering properties and fate in a marine environment, such a basis may include oil budget, colour thickness properties, transport and dispersion, or effectiveness of relevant emergency preparedness materials, cf. the [Facilities Regulations Section 41](#) on materials for action against acute pollution.

Before exploration activity commences there should, as a minimum, be a theoretical assessment available of the pollution's properties as a basis for environmentally oriented risk and emergency preparedness analyses, cf. the [Management Regulations Section 16](#) on environmentally oriented risk and emergency preparedness analyses.

If the transport of oil in pipelines entails blends that have altered characteristics that are of significance to the environment and emergency preparedness, such blends should be characterised.

A demand analysis should be carried out with regard to small-scale or meso-scale laboratory testing for mapping the oil's weathering properties and fate in a marine environment. The reason for choice of method for carrying out dispersion analyses should be stated, and the methodology should be chosen so that the results of analyses are comparable within the same region.

## **X-II**

### **EMISSION AND DISCHARGE TO THE EXTERNAL ENVIRONMENT**

#### **Re Section 55 a**

##### **Discharge of oil-contaminated water**

The requirement to cleaning as mentioned in the first paragraph, applies to all discharges, but not to displacement water where low oil content and location of the outlet make cleaning not very expedient.

Oil content as mentioned in the second paragraph, means the content of dispersed oil in undiluted water.

In addition to striving to achieve the lowest possible oil content in water as mentioned in the third paragraph, the operator should evaluate the possibility of reducing the total water volume discharged, e.g. through techniques such as water shut-off, downhole separation and injection. When the technology is available for cleaning substances other than dispersed oil, the Norwegian Pollution Control Authority may require such cleaning.

If oil-contaminated water is injected, cleaning of the water will not normally be required.

Information about processing times may be obtained by contacting the Norwegian Pollution Control Authority.

#### **Re Section 55 b**

##### **Emission to air**

Polluting emissions to air on the Norwegian shelf come under the scope of the Pollution Control Act. With regard to energy producing plants offshore (existing and new plants with a supplied total nominal thermal effect of 50 MW), the EU council directive 96/61/EF on integrated prevention and limitation of pollution (the IPPC directive) applies, too. Pursuant to the EEA agreement, the directive is binding on Norway and is implemented in Norwegian legislation. The directive puts requirements to the pollution control authority's follow-up of the activities and the obligations of these activities with respect to the environment. The obligations of Norway in the directive shall be fulfilled by application of the Pollution Control Act. Follow-up of the directive implies the stipulation of new requirements to emissions to air from energy producing plants offshore.

The Pollution Control Act and the IPPC directive require that best available techniques (BAT) be used when stipulating emission requirements to reflect what can be achieved by using BAT while at the same time not specifying the actual techniques to be used. To help the authorities decide which techniques can be regarded as BAT, the EU is preparing BAT reference documents for guidance, both for individual lines of businesses and across these lines. These documents show which techniques, evaluated in general, can be said to be consistent with the IPPC directive's requirements to BAT. Thus, the BREF documents cannot be said to specify BAT requirements as such, but must be regarded as guidelines for BAT evaluations. The energy producing plants offshore are included in the BREF for large combustion plants (LCP-BREF). Upon determining what is to be regarded as BAT in the individual case, the pollution control authority will attach importance to the relevant BREFs at hand as well as the technical characteristics of the plant, its geographical location and local environmental conditions.

New fields and new development projects shall be operated in accordance with the directive from the point in time at which the activities are started up (article 4).

Choice of development solution may be of great importance to the technical and economic consequences by limiting the emissions to air. There might be a mutual connection, hence, between the terms of the emission permit meant to limit the emissions to air, and the choice of development solution. Therefore, in the event of new developments and upgrading of existing ones, the operator should inform the SFT about his BAT evaluations early in the development process, i.e. in ample time prior to making a choice of and deciding on development solutions, and prior to entering into binding contracts. This applies independently of the development being comprised by the requirement to do impact assessments. The BAT evaluations should also be included in the impact assessment and in the application for emission permit pursuant to the Pollution Control Act. In the application, the operators must explain, and substantiate, that chosen solutions can be regarded as BAT.

According to the Pollution Control Act section 11 the company must apply for emission of NO<sub>x</sub> and CO<sub>2</sub>. It follows from the Pollution Control Act section 11 second paragraph that “a quota obligation party shall, according to the Climate Quota Act section 4, upon application be granted permission for quota obligation emissions of green house gases if said party can prove that he is able to monitor and report the emissions in a satisfactory manner.”

**Re Section 56 a**  
**Ecotoxicological testing of chemicals**

Norwegian Accreditation (NA) is the Norwegian agency for the accreditation of technical issues, including GLP as mentioned in the first paragraph of the section.

A summary of different types of chemicals which require ecotoxicological documentation in the form of a HOCNF, as mentioned in letter a second paragraph of the section, is shown in the table below. The operator should do an independent (in-house) environmental evaluation of those chemicals which do not require a HOCNF. Guidance for the completing of HOCNF is given in "[Supplementary guidance for the completing of harmonised offshore notification format \(HOCNF\) for Norwegian sector](#)".

No.	Type of Chemical	HOCNF requirement	Comment
1	Chemicals which only consist of substances on the PLONOR list	Yes, except part 2	Exceptions for requirements for testing
2	All chemicals which are planned used in connecting with drilling an well operations and production	Yes	Applies also to exploration drilling
3	Chemicals in water based, synthetic and oil based drilling fluids	Yes	Base fluid included
4	Chemicals which are used in utility systems, pipelines and water injection	Yes	This includes chemicals which will stay in the well and chemicals which will follow the exported oil, even if these chemicals will not be discharged offshore
5	Chemicals in closed systems, including BOP fluid and hydraulic fluids	No  Yes	When amounts* are below 3000 kg per facility per year  When amounts* exceed 3000 kg per facility, HOCNF is required
6	Lubricants	No  Yes	Lubricants that are not being discharged  When lubricants are being discharged, HOCNF is required
7	Pipe dope	Yes	For testing of bioaccumulation and bio-degradation of pipe dope, the grease part may be handled as one substance. All of

			substances in the grease shall be listed in the HOCNF
8	Water and gas tracers	Yes	The requirement to have a HOCNF applies to water tracers only
9	Deck washing agents	Yes	
10	Chemicals for emergency preparedness (contingency chemicals)	Yes	The Operator shall evaluate the chemicals for emergency preparedness (contingency chemicals) which they plan to use, and have a list which cover these. There is no requirement to send the list and the corresponding HOCNFs to SFT. Please also see the <a href="#">Activity regulation § 58</a> regarding chemicals for emergency preparedness.
11	New chemicals to be field tested	No	The operator should do an evaluation of the toxicity of the product, and the biodegradation and potential for bio-accumulation of each substance in the product. The evaluation shall be documented and may be based on test data or literature data. If the chemical is taken into use, a HOCNF shall be available within 6 months.
12	Dispersants and beach cleaning agents to combat oil spills	No	For testing and documentation regarding dispersants and beach cleaning agents the requirements in the regulations of 1 June 2004 No. 931 Chapter 19 regarding the composition and use of dispersants and beach cleaning agents to combat oil spills apply.
13	Fuel	No	
14	Laboratory chemicals and aerosols	No	
15	Paint and other means of surface treatment, including aerosols	No	
16	Chemicals in fire water systems	No	

\*The meaning of amounts is meant initial charging of the system, replacement and all other use of the chemical.

To fill in the HOCNF, the OSPAR Guidelines for Completing the Harmonized Offshore Chemical Notification Format should be used.

#### Regarding no 1 Biodegradation

When evaluating the properties of the degradation products for substances with moderate degradation (BOD<sub>28</sub> between 20 and 60%), the results from testing of inherent biodegradability may be used together with other available information regarding the substances. The evaluations should be documented.

#### Regarding no 2 Bioaccumulation

The potential for bioaccumulation is given as the partition coefficient octanol/water, Log Pow. LogPow from the OECD 117 method shall be given as the highest value if the results show several values, comprising all peaks with an area exceeding 5 % in the chromatograph. Scientific evaluations of the potential for bioaccumulation and estimated values for LogPow should be made clear as a comment in the HOCNF.

Definitions and reference:

Preparation: Preparation means a mixture or solution that consists of two or more substances.

Substance: the OSPAR Guidelines for Completing the HOCNF define substance: an element and its chemical compounds in natural form or as a result of a process, including added material needed to make the compound stable, and including contaminants from the production process, but excluding solvents which can be separated without interference with the substance's stability or without altering the substance's properties. Substances were previously called components.

Chemical: Common term for chemical substances or mixture of substances.

OSPAR: Oslo-Paris Convention for the protection of the Marine Environment of the North-East Atlantic

OECD: Organisation for Economic Co-operation and Development

SKIM: Co-operation forum for offshore chemical producers and suppliers, industry and environment authorities in Norway

OSPAR Guidelines for Completing the HOCNF. OSPAR ref. no. 2003-1, [www.sft.no](http://www.sft.no)

HOCNF: OSPAR Recommendation 2000/5 on a Harmonised Offshore Chemical Notification Format (HOCNF), [www.sft.no](http://www.sft.no)

PLONOR list; OSPAR List of Substances/Preparations Used and Discharged Offshore which Are Considered to Pose Little or No Risk to the Environment (PLONOR), [www.sft.no](http://www.sft.no)

OSPAR Recommendation 2000/4 on a Harmonised Pre-screening Scheme for Offshore Chemicals, [www.sft.no](http://www.sft.no)

### **Re Section 56 b Categorization of chemicals**

The Priority list of substances from White Paper no 21 (2004-2005), as mentioned under the criteria for substances in black category, consist of endocrine disruptors, like alkyl phenols, alkyl phenol etoxylates, bisphenol A, phthalates, tin organic compounds and others. Please see the OBS list, [www.miljostatus.no](http://www.miljostatus.no), for other substances which may be endocrine disruptors.

With mutagenic and reproduction detrimental substances are meant mutagenic category (Mut) 1 and 2 and reproduction category (Rep) 1 and 2, cf. attachment 1 to the Regulations regarding labelling etc. of dangerous chemicals or self classification.

Reference to letter b:

White paper no 25 (2002-2003) The government's environmental policy and the environmental state of the realm, <http://odin.dep.no/md>, Chapter 8 and attachment 2

OSPAR List of Substances/Compounds Liable to Cause Taint (Reference number: 2002-5), [www.sft.no](http://www.sft.no)

OSPAR List of Chemicals for Priority Action, [www.sft.no](http://www.sft.no)

### **Re Section 56 c Environmental assessments**

The operator is required to substitute substances with may be harmful to health or the environment with less harmful alternatives, cf. the product control act § 3a regarding substitution requirements.

The evaluation regarding the chemicals as mentioned in first sentence, should also include treatment of waste/hazardous waste and necessary transport. Evaluation of the destiny of the chemicals after being discharged to the sea may be included under other conditions of significance to the risk.

As a help when evaluating the chemicals' destiny in the environment, the chemicals may be ranked with the help of CHARM (Chemical Hazard Assessment and Risk Management Model) or other models based on similar principles. Guidelines for the use of the CHARM-model are published. The calculated numbers from CHARM may be used for ranking the chemicals, but not for describing the environmental influence following the use and discharge of the chemicals.

References to letter c:

CHARM, Chemical Hazard Assessment and Risk Management; User Guide for the Evaluation of Chemicals Used and Discharged Offshore, [www.sft.no](http://www.sft.no)

**Re Section 56 d**  
**Choice of chemicals**

No comment.

**Re Section 57**  
**Use and discharge of chemicals**

The handling of applications by the authorities as mentioned in this paragraph shall be done pursuant to [regulations of 1 June 2002 no 931 regarding limitation of pollution, chapter 36, handling of applications pursuant to the Pollution Control Act](#) (Norwegian only). These regulations include requirements regarding handling applications by the authorities in addition to describing what shall be included in an application. Information regarding the time it takes for the authorities to handle the application may be given by the Norwegian Pollution Control Authority (SFT).

About which discharges need a permit as described in the first paragraph:

The operator must have a permit pursuant to the [Pollution Control Act chapter 3](#) when operating on the Norwegian Continental Shelf. This applies to activities like drilling and well operations, production, emptying of pipelines, and other activities which lead to the use and discharge of chemicals. The basis for the permit as mentioned in the first paragraph, is the results from testing, and the carrying out of evaluations and categorisation of chemicals as mentioned in section 56.

There is no requirement to apply for a discharge permit for chemicals in fire water systems, see the Pollution Control Act, section 4 first paragraph, cf. section 7 first paragraph, cf. chapter 3. These issues are covered by the safety requirements in the [Petroleum Act](#).

Discharges from the living quarter, offices etc, including sanitary drainage and chemicals to be added to and cleansing of drinking water systems, are allowed pursuant to the Pollution Control Act, cf. section 8 first paragraph no 2, and it is therefore not required to apply for a permit. The Product Control Act and its regulations apply to all chemicals which are being used. This means that also the substitution requirement applies.

If activities are carried out which lead to the use and/or discharge of chemicals in amounts which the operator considers as very small and which is not covered by the permit in force, SFT may be contacted to decide the need to apply for a specific permit.

Conditions in the permits:

Specific conditions may be given in the permits for the use and discharge of chemicals, cf. the [Pollution Control Act](#) section 16.

The operators will be required to register and report the amounts discharged to the sea and injected as described in the Guidelines on reporting from offshore petroleum activities.

Even if the use and discharge of chemicals are within the limits set in the discharge permit, the use and discharge shall be reduced as much as possible. The same applies to the use and discharge of chemicals for which there are no specific limits, cf. the [Framework regulations section 9](#).

Even if the operator has received a permit to use and discharge chemicals, he shall evaluate whether less harmful alternatives are available, pursuant to the [Product Control Act section 3a](#).

Categorisation of chemicals, as described in these regulations [section 56 b](#), will be the basis for the conditions to be set in the permit.

Discharge of substances in black category will normally not be allowed. If such permit is given, it will apply to specific products, and it will be given a permit to use and discharge a specific amount of substance. For SFT to give a permit for substances in black category, the reason for the need for such use must be given, and documentation must be available. The permit will include a condition regarding these substances having a high priority for being substituted.

If applied for, SFT will normally give a permit to use and discharge a specific amount of substances in red category. The permit will include a condition regarding these substances having a high priority for being substituted.

For chemicals in yellow category, specific conditions regarding the use and discharge will not be given, but the permit will give an estimate of the amount which the operator plans to discharge. The permit will normally include a condition that if a larger amount of substances in yellow category is discharged, the reason for this shall be described in the annual discharge report, cf. the [Information Duty regulations section 9](#) letter c.



Information regarding the types and amounts of PLONOR-chemicals (substances in green category) being used and discharged, will normally not be asked for. The use and discharge will be covered by the permit. If individual activities are planned (as for example drilling of single wells or discharges from pipelines) which are not covered by the permit in force with only the use of PLONOR chemicals, SFT must be contacted. In special cases there may be specific conditions given regarding discharges also for PLONOR chemicals. This will depend on the volume being discharged, the recipient and the time of the discharge, for example when discharging from export pipelines being taken into use or when the discharges are being done in areas with specially vulnerable resources.

Normally, SFT will not ask for information about the types and amounts of chemicals in closed systems if the amount of products is less than 3000 kg per year or lubricants that are not being discharged. The use and discharge will be covered by the permit as long as it is in line with relevant regulations in force pursuant to the Product Control Act. Information regarding types and amounts will be asked for if the use of lubricant is high.

Normally, SFT will not require information about the types and amounts of laboratory chemicals and aerosol cans in the discharge application. The use and discharge will be covered by the permit, if the use and discharge is in line with regulations regarding ozone reducing substances and other relevant regulations in force pursuant to the [Product Control Act](#).

The ban on discharges of unused chemicals as mentioned in second paragraph, also applies to chemicals on the OSPAR PLONOR list.

Heavy metals in weight materials is an example of contaminants in chemicals as mentioned in fourth paragraph.

When evaluating applications to discharge large amounts of water containing chemicals from pipelines as mentioned in fifth paragraph, SFT will take into account the recommendations from the relevant expertise. The conclusions from consulting with independent expertise should be included in the application. In the case of pipelines, by large amounts are meant volumes greater than 1000 m<sup>3</sup> of water.

### **Re Section 58**

#### **Chemicals for emergency preparedness**

The chemicals for emergency preparedness shall be tested and evaluated as mentioned in [Section 56](#) on testing and evaluation of chemicals.

The operator shall not apply for permission to use and discharge chemicals for emergency preparedness but any use and discharge shall be reported as stated in the [Information Duty Regulations Section 9](#) on information on monitoring, discharge and risk of pollution, littera d.

The party responsible shall consider whether there are less harmful chemicals for emergency preparedness than those specified on the list of chemicals for emergency preparedness, in accordance with the [Act 11 June 1976 No. 79 relating to product control and consumer services](#), Section 3a.

For the use of dispersants and chemicals for cleaning the seashore to be used during acute oil pollution incidents, we refer to the [regulations of 1 June 2004 No. 931 relating to the abatement of pollution \(pollution abatement regulations\)](#) chapter 19 about the composition and use of dispersants and chemicals for cleaning the seashore for combating oil pollution. The Norwegian Coastal Authority is the professional authority in an acute situation if dispersants are not included in the operator's emergency preparedness plans.

### **Re Section 59**

#### **Discharge of cuttings, sand and solid particles**

Cuttings as mentioned in the first paragraph, means both solid material from the formation and solid material added as part of the drilling fluid or other fluids used in drilling and well activities. By organic drilling fluid is meant mineral oil based and synthetic drilling fluid.

Even if the oil content or the base fluid in synthetic drilling fluid as mentioned in the first paragraph, is less than ten grams per kilo of dry substance, the operator should consider additional cleaning or other disposal methods than discharge to sea, for example as injection.

Information about processing times may be obtained by contacting the Norwegian Pollution Control Authority.

### **Re Section 60**

#### **Discharge from formation testing and cleanup of wells**

Start-up of any flaring as mentioned in the second paragraph, should take place in daylight.

Information about processing times may be obtained by contacting the Norwegian Pollution Control Authority.

### **Re Section 61**

#### **Measuring the quantity of discharged oil, other substances and water**

With regard to measuring, OLF's guidelines for sampling and analysis of produced water may be used.

An overview of which substances the requirement applies to, may be found in the Guidelines on reporting from offshore petroleum activities. The data collection programme as mentioned in the second paragraph, should include a description of the method for manual measurement if an automatic analyser is not functioning. The data collection programme should also encompass changes in procedures in cases where unstable operation of the facilities is expected or detected.

### **Re Section 62**

#### **Measuring associated fluids discharged with solids**

Organic drilling fluid means mineral oil-based and synthetic drilling fluid. Solids include cuttings, produced sand and other solid materials from the well, such as packing and inert materials.

The requirement to measuring also applies to sediments and deposits from process equipment.

## **X-III WASTE**

### **Re Section 63**

#### **Waste**

For handling of waste as mentioned in the second paragraph, the Regulations relating to dangerous waste and [Regulations of 1 June 2002 no. 931 relating to limitation of pollution](#) (the pollution regulations) chapter 21, Prohibition against incineration at sea, as well as other regulations issued pursuant to [Chapter 5 of the Pollution Act](#), shall apply unless specifically stated otherwise.

Waste oil as mentioned in the third paragraph, means used lubricants and similar oils (used in engines, gear boxes, hydraulic systems, transformers, switches etc.) that cannot be used as originally intended any longer.

The plan for treatment of waste as mentioned in the fourth paragraph, should include the reduction of the volume of waste, source separation, reuse, recycling and potential energy recovery.

Information about processing times may be obtained by contacting the Norwegian Pollution Control Authority.

## **CHAPTER XI EMERGENCY PREPAREDNESS**

### **XI-I GENERAL REQUIREMENTS TO EMERGENCY PREPAREDNESS**

#### **Re Section 64**

##### **Establishing of emergency preparedness**

In order to fulfil the strategy requirement as mentioned in the first paragraph, the ISO 15544 standard and the ISO 13702 standard Chapter 4 should be used for health and safety-related emergency preparedness.

The defined situations of hazard and accident as mentioned in the first paragraph, mean a representative selection of situations of hazard and accident used for dimensioning the emergency preparedness.

In order to fulfil the requirement to establishing emergency preparedness as mentioned in the first paragraph, the [NORSOK U-100](#) standard revision 3, Chapters 5.1.5 and 9, should be used for manned underwater operations.

Particular cases as mentioned in the third paragraph, may include activities where the harm to the environment may be substantial, but where the probability of situations of hazard and accident that can entail

pollution is so low that the acceptance criteria for environmental risk is nevertheless met. Another example may be activities where there is inadequate data.

The normal processing time in connection with the second paragraph, second sentence, is fourteen weeks, so that the Norwegian Pollution Control Authority has an opportunity to determine whether particular circumstances exist that necessitate additional emergency preparedness requirements.

### **Re Section 65**

#### **Joint use of emergency preparedness resources**

Co-operation by agreement as mentioned in the first paragraph, means, inter alia, signed agreements regarding joint emergency preparedness plans or agreements regarding the use of others' emergency preparedness resources to ensure an optimal emergency response in the event of major acute incidents within an area or region. The availability of public resources in situations of acute pollution will depend on the absence of any other prioritised activities going on and necessary evaluations of sensitivity and uncertainty with respect to availability of such resources must be performed.

### **Re Section 66**

#### **Emergency preparedness organisation**

The emergency preparedness organisation as mentioned in the first paragraph, means the personnel, including a medical practitioner, who are directly linked to the unit resources, area resources, external resources and regional resources.

In order to ensure robustness as mentioned in the first paragraph, emphasis should be placed on the individual's education and competence, experience, physical suitability, personal qualities and experience from drills and training when selecting the personnel.

The situations of hazard and accident as mentioned in the first paragraph, also include other situations of hazard and accident than the defined, complex situations of hazard and accident, stress situations and situations where key personnel are incapacitated or are unable to carry out their duties.

Necessary functions as mentioned in the second paragraph, means, inter alia, operational leadership, operation, environment, economy, logistics and information.

### **Re Section 67**

#### **Emergency preparedness plans**

The emergency preparedness plans should, inter alia, include

- a) a description of purpose, scope and responsibility,
- b) a description of organisation, alerts, mobilisation and communication,
- c) action plans,
- d) a description of field(s) and facility(s) and potential areas impacted by acute pollution,
- e) a description of unit resources, area resources, regional resources and external resources and equipment,
- f) instructions for emergency preparedness personnel,
- g) co-operation procedures, if applicable, for co-ordination with other participants, see [Section 65](#) on joint use of emergency preparedness resources, second and third paragraphs,
- h) co-operation procedures and agreements, if applicable, cf. these regulations [Section 69](#) on regional emergency preparedness against acute pollution.

Action plans as mentioned in litera c of these guidelines, should deal with, inter alia,

- a) emergency preparedness strategy, emergency response actions and decision criteria for the emergency preparedness phases,
- b) for handling of **acute pollution** the emergency preparedness strategy should comprise objectives for protection of prioritised, vulnerable environmental resources . The description of emergency preparedness actions and decision criteria for the various emergency preparedness phases should include response time for relevant emergency preparedness actions, remote measurements, choice of emergency preparedness actions based on minimum environmental damage considerations, shore cleanup and environmental surveys in case of acute pollution,
- c) for **health-related emergency preparedness** deal with, inter alia, treatment of
  - a) personal injuries in the event of major accident situations,
  - b) personal injuries in the event of industrial accidents,
  - c) acute illness,
  - d) mental reactions,
  - e) communicable diseases,

f) poisoning.

In order to fulfil the requirement to emergency preparedness plans, the [NORSOK U-100](#) standard revision 3 Chapter 9.1 should be used for manned underwater operations.

## XI-II

### EMERGENCY PREPAREDNESS ACTIONS IN SITUATIONS OF HAZARD AND ACCIDENT

#### Re Section 68

##### Handling of situations of hazard and accident

Giving the **right alert** as mentioned in litera a, means alert of, inter alia,

- a) the facility's central control room or another central function,
- b) the Main Rescue Co-ordination Centre,
- c) one or more parts of the operator's emergency preparedness organisation,
- d) contractors' emergency preparedness organisations,
- e) other licensees and partners in the event of an agreement relating to coordinated emergency preparedness resources, or in the event of joint use of production and/or transportation systems.

The scope of the alert will depend on the situation at hand. The Main Rescue Co-ordination Centre as mentioned in litera b of this comment, will handle further alert of the agencies that have national emergency preparedness resources at their disposal.

The requirement to **rescue** as mentioned in litera c, implies that that the responsible party must be able to

- a) locate missing personnel using personnel control systems,
- b) bring personnel to safe areas on vessels, facilities or land,
- c) give injured personnel lifesaving first aid and medical treatment on their own facilities, the standby vessel or other facilities.

The requirement to rescue also implies that the two independent MOB boat systems, cf. the [Facilities Regulations Section 40](#) on equipment for rescue of personnel, have dedicated crews.

The requirement to **evacuation** as mentioned in litera d, implies that the evacuation actions are such that they provide the highest possible probability that personnel can be evacuated from an exposed area to a safe area on the facility and, if applicable, to safe areas on vessels, other facilities or on land. As regards sick and injured personnel, the requirement implies that transport to the land-based health service takes place in a proper and prudent manner.

In order to fulfil the evacuation requirement as mentioned in litera d, the [NORSOK U-100](#) standard revision 3, Chapter 9.5, should be used for divers under pressure.

The requirement to **normalisation** as mentioned in litera e, also implies that

- a) injured or sick personnel are given the necessary treatment and care, such as medical treatment on land and follow-up of physical and mental delayed injuries, and that the next of kin of such personnel are provided with the necessary information, care and follow-up after major accidents,
- b) damage to the facility and reservoir is stabilised and corrected,
- c) the operation of the facility is resumed.

## XI-III

### EMERGENCY PREPAREDNESS AGAINST ACUTE POLLUTION

#### Re Section 69

##### Regional emergency preparedness against acute pollution

Regions as mentioned in the first paragraph, are dealt with in [Section 49](#) on co-operation on and planning of monitoring of the external environment.

Actions as mentioned in the second paragraph, may inter alia be the working out of a new concept or new solutions, transfer of activities in time or strengthened emergency preparedness.

#### Re Section 70

##### Action against acute pollution

When preparing the plan as mentioned in the first paragraph, the starting point should be the emergency preparedness plan's action plans, cf. [Section 67](#) on emergency preparedness plans.

As mentioned in the [Information Duty Regulations Section 9](#) on information on monitoring, discharge and risk of pollution, the action plan for acute pollution must be submitted to the supervisory authorities.

Documentation as mentioned in the second paragraph, means a description of

- a) actions taken,
- b) results from follow-up surveys, if applicable,
- c) environmental impact and environmental inconvenience,
- d) achievement of objectives,
- e) criteria for concluding actions.

## **CHAPTER XII COMMUNICATION**

### **Re Section 71 Communication**

In order to provide for communication as mentioned in the first paragraph, it should be possible, inter alia, to

- a) provide important information to personnel on the facility during operations and in situations of hazard and accident,
- b) communicate important information between personnel in the control centre, personnel concerned with operation of the process facilities, drilling operations and lifting operations,
- c) establish and maintain direct and continuous communication between communication operators, field and platform management and internal and external emergency preparedness resources in situations of hazard and accident,
- d) provide communication in the event of a coordinated action against acute pollution.

The requirement to external communication as mentioned in the first paragraph, implies that manned facilities must have 24-hour continuous telecommunications services with watch service on VHF channel 70 (DSC) and channel 16. The service may be established on one's own facility or as a part of a joint solution where several facilities are placed within a specifically defined area.

In connection with such a solution,

- a) a central communications centre should be established on one of the facilities and an alternative centre should be prepared on one of the other facilities,
- b) the facilities covered by the solution should be mutually covered by VHF radio communication and be organised under the same second-line emergency preparedness management,
- c) efficient routines should be established to achieve contact with the facilities when the local radio station is not manned,
- d) the facilities must have mutual permanent communication lines.

The other facilities covered by this solution should have a communication operator who primarily handles communication tasks in situations of hazard and accident.

A person responsible for communications as mentioned in the second paragraph, means a person who has a particular responsibility to see to that the operation of the facility's radio station and use of the other communication systems are professional at any time.

## **CHAPTER XIII DRILLING AND WELL ACTIVITIES**

### **Re Section 72 Well programme**

In order to fulfil the requirement to the programme as mentioned in the first paragraph, the [NORSOK D-010](#) standard revision 3 Chapters 4.3, 4.7, 4.10.3 and 9.3 should be used in the area of health, working environment and safety.

For wells that are to be temporarily plugged back, the programme should also describe

- a) plans for future use of the well,
- b) securing of the wellhead,
- c) planned location inspections and frequency of these,
- d) an assessment of the well integrity in relation to the lifetime of the barriers, cf. also [Section 79](#) on securing of wells.

The updating as mentioned in the second paragraph, implies, for example, that a new programme shall be prepared for wells that have not been put to use according to the original plan, or that have been temporarily plugged back for three years.

### **Re Section 73**

#### **Well location and well path**

In order to fulfil the requirement to well location and well path as mentioned in the first paragraph, the [NORSOK D-010](#) standard revision 3 Chapters 4.3 and 5.7.4 should be used with the following addition:

the well's location and path should be given in Universal Transverse of Mercator (UTM) co-ordinates.

### **Re Section 74**

#### **Shallow gas and shallow formation fluids**

Formation fluids as mentioned in the first paragraph, also means hydrates and water under pressure.

In order to fulfil the requirement the [NORSOK D-010](#) standard revision 3 Chapter 5.7.2 should be used in the area of health, working environment and safety.

### **Re Section 75**

#### **Monitoring of well parameters**

The requirement to collection implies, inter alia, that data that may indicate a well control incident are monitored, recorded and treated.

In order to fulfil the requirement to collection, the [NORSOK D-010](#) standard revision 3 Chapter 4.7.2, 5.7.3 and 5.7.4.2 should be used with the following addition:

when testing the formation's fracture strength, pressure testing to the maximum anticipated pressure for the well section should be carried out.

### **Re Section 76**

#### **Well barriers**

In order to fulfil the requirement to well barriers as mentioned in the first paragraph, the [NORSOK D-010](#) standard revision 3 Chapters 4.2 and 15 should be used in the area of health, working environment and safety.

Where a homogeneous liquid column constitutes the primary barrier, the barrier requirement as mentioned in the first paragraph, implies that there is sufficient drilling fluid material and drilling fluid available to maintain the barrier, cf. also the [Facilities Regulations Section 50](#) on drilling fluid system.

The handover as mentioned in the third paragraph, is, inter alia, handover between companies and handover between units on the facility. Examples of such units are “production”, “well service”, “operation” and “maintenance”.

In order to fulfil the requirement to handover of wells mentioned in the third paragraph, the [NORSOK S-010](#) standard revision 3 Chapters 4.10.3, 8.3 and 8.7 should be used for drilling and well activities.

### **Re Section 77**

#### **Well control**

Loss of well control as mentioned in the first paragraph, means the failure of one or more well barriers.

In order to fulfil the requirement to regain well control as mentioned in the first paragraph, the [NORSOK D-010](#) standard revision 3 Chapter 4.2.7 should be used.

In order to fulfil the requirement to the action plan as mentioned in the second paragraph, the [NORSOK D-010](#) standard revision 3 Chapter 4.8 should be used.

### **Re Section 78**

#### **Controlled well flow**

Controlled well flow means formation testing, test production, clean-up and stimulation of the well.

Discharge from formation testing and clean-up of wells are covered by § 60 about the discharges from formation testing and well clean-up.

In order to fulfil the requirement to limitations in the area of health, working environment and safety, the [NORSOK D-010](#) standard revision 3 Chapters 6, 7, 8 and 14, plus tables 15.27, 15.32, 15.34, 15.35, 15.36, 15.45 and 15.46 should be used. Cf. also the [Facilities Regulations Section 53](#) on equipment for completion and controlled well flow.

**Re Section 79  
Securing of wells**

In order to fulfil the requirement to securing as mentioned in the first paragraph, the [NORSOK D-010](#) standard revision 3 Chapter 9 should be used in the area of health, working environment and safety.

The monitoring as mentioned in the first paragraph, should be carried out by monitoring the pressure above the lowermost barrier.

In order to control the well integrity as mentioned in the second paragraph, one should, inter alia, be able to monitor pressure conditions or set a blind plug just above or below the packer element. For surface-completed wells, it should be possible to monitor the pressure in the annulus and in the production tubing, or as an alternative, in the last casing set. For sub sea-completed wells, it should be possible to monitor the pressure in the production tubing and in the production annulus.

If it is necessary to leave the radioactive source behind in the well, as mentioned in the third paragraph, the [NORSOK D-010](#) standard revision 3 Chapter 9 and table 15.24 should be used, with the following additions:

- an internal overview over left behind sources should be established and maintained. The overview should contain details about every single source and its position,
- radioactive sources left behind in work strings should be secured in a manner which clearly indicates any unintentional drilling close to/in the direction of the source's position.

**Re Section 80  
Remote operation of pipes and work strings**

In order to fulfil the requirement to remote-operated pipe handling, [OLF/NR guideline No. 081](#) revision 2 should be used.

The requirement to limitations as mentioned in the second paragraph, implies, inter alia, that one has to decide the work area of the remote-operated systems.

Personnel as mentioned in the third paragraph, means those manning the control and monitoring functions, and personnel staying inside the work area of these systems. The personnel should be able to have a corresponding contact and communication among themselves.

**CHAPTER XIV  
MARINE OPERATIONS**

**Re Section 81  
Positioning**

In order to fulfil the requirement to marine operations as mentioned in the first paragraph, Table 1 Equipment Class should be used for vessels and facilities with dynamic positioning, with the following addition:

in the event of dynamic positioning near other floating facilities or vessels, consideration should be given, inter alia, to

- a) mutual movement and different movement patterns,
- b) the effect of current and noise from propellers,
- c) interference with other or joint transponders,
- d) varying shadow effect for antennas connected to the dynamic positioning system.

When calculating anchoring systems, see also [Section 23](#) on use of facilities.

**Table 1 Equipment Class**

For a description of the equipment classes in this table, see IMO/MSC Circular 645, Chapter 2, Equipment Classes.

ACTIVITY	
<b>a) Manned underwater operations</b> where loss of position entails a high risk for divers or diver platforms	3
<b>b) Other manned underwater operations</b> where loss of position entails risk for divers or diver platforms	2
<b>c) Support vessels for manned underwater operations conducted from work boats</b> where loss of position for the support vessel has direct consequences for the work boat	2
<b>d) Drilling and well activities</b> where well control is handled by a facility with dynamic positioning	3
<b>e) Facilities that produce or store hydrocarbons</b>	3
<b>f) Flotels with gangway connected</b> Two reference systems may be accepted for arrival and departure	3
<b>g) Activities carried out by lifting vessels or pipe laying vessels in the vicinity of the facility (here permanently placed and mobile/floating)</b> On arrival and departure it is acceptable that only two of the three reference systems are operational	3
<b>h) Other activities within the safety zone, where the vessel represents a risk to the facility</b> The requirement applies if the vessel exceeds the vessel size the facility is designed for with regard to withstanding a collision. Two reference systems may be accepted for arrival and departure	2
<b>i 1) Tank vessel loading from facilities handling hydrocarbons</b> The requirement applies to the tank vessel	2
<b>i 2) Tank vessel loading from subsea loading and off-loading installations</b> where the tank vessel is not moored or anchored to these installations	2
<b>i 3) Tank vessel loading from subsea loading and off-loading installations</b> where the tank vessel is moored or anchored to these installations	1* or 2
<b>j) Loading operations from buoys</b>	1
<b>k) Other well activities</b> The requirement applies to well maintenance facilities if well control is handled by another facility	2
<b>l) Shallow drilling</b> if one does not expect to encounter hydrocarbons	1

\*Equipment class 1 if the distance between the facility/facilities in question is 2.5 km or more. If not, class 2 applies.

**Notes to the table**

1) For dynamic position, consideration should be given to the reference systems' limitations as regards reliability, accessibility and quality.



- 2) High risk as mentioned in this table litera a, means the cases when the diver does not have an unrestricted return to the diving bell, or where loss of the vessel's position can lead to loss of or damage to the diving bell, and possibly the associated bottom weight.
- 3) The requirement to Equipment Class 3 for drilling and well activities as mentioned in this table litera d, does not apply to shallow drilling and core drilling. For shallow drilling, however, other requirements in the table may be relevant, such as the requirement to Equipment Class 2 for other activities within the safety zone without risk to health, environment and safety. Well activities that require Equipment Class 3, are, inter alia, well intervention including wireline operations. Other well activities as mentioned in this table litera k, with requirements for Equipment Class 2, where the production facility has well control equipment, may be well stimulations and unmanned underwater operations, including the use of remote-controlled subsea vessels or subsea tools.
- 4) The recommendation of equipment class 2 for tank vessels as mentioned in this table, is conditional upon the preparation of a positioning capacity plot for the dynamic positioning system.

In order to maintain the position as mentioned in the second paragraph, floating production, storage and offloading facilities (FPSOs) and floating storage units (FSUs) that offload to tank vessels, should be equipped with directional control.

Floating vessel shaped production and storage facilities should at all times know their own position and direction and the position and direction of nearby facilities and larger vessels, cf. section 29 on monitoring and control.

In loading operations where no hawser is being used, the tank vessel should be able to stop the loading automatically if the limits for distance and direction are exceeded, at the same time as emergency shutdown valves are being closed on the facility and on the vessel, cf. the facilities regulations section 32 on emergency shutdown systems.

## **CHAPTER XV ELECTRICAL INSTALLATIONS**

### **Re Section 82**

#### **Work on and operation of electrical installations**

In order to fulfil the requirements to work as mentioned in the first paragraph, the Directorate for Civil Protection and Emergency Planning's

- a) [Regulations 28 April 2006 No. 458 relating to safety when working on and operating electrical installations](#), Chapter I Section 5, Chapter II Sections 6, 7 and 9 and Chapters III, IV and V,
  - b) [Regulations 20 August 1999 No. 955 relating to use and maintenance of electro medical equipment](#), Chapter III
- should be used. In addition
- d) AODC 035 Code of practice for the safe use of electricity under water should be used for manned underwater operations.

Being the responsible person as mentioned in the second paragraph, implies that one has a particular professional responsibility for ensuring that electrical installations fulfil applicable regulations at any time, and that one is kept up to date regarding electrical installations and equipment during planning, construction and commissioning, etc.

## **CHAPTER XVI LIFTING OPERATIONS**

### **Re Section 83**

#### **Lifting operations**

In order to fulfil the requirement to lifting operations as mentioned in the first paragraph, the [NORSOK R-003](#) standard should be used. Cf. also the [Facilities Regulations Section 70](#) on lifting appliances and lifting gear and these regulations [Section 23](#) on use of facilities.

**CHAPTER XVII  
MANNED UNDERWATER OPERATIONS**

**Re Section 84**

**Manned underwater operations**

During conduct of manned underwater operations, the [NORSOK U-100](#) standard revision 3 should be used.

**Re Section 85**

**Provisions relating to time periods**

Stays at working depth as mentioned in litera a, means the time between completed compression, alternatively first compression if work is to be carried out at several pressure levels, and start of final decompression.

Bell runs as mentioned in litera c, shall be calculated continuously from the first time the lock between the bell and the chamber is depressurised, and shall be concluded before the pressure in the lock has been equalised for the last time.

Surface personnel as mentioned in litera h, means the diving supervisor or possibly a diving supervisor candidate under qualified leadership.

When stipulating breaks as mentioned in litera h, the workload should be used as a basis; however, the breaks should not be shorter than a half hour.

**CHAPTER XVIII  
ENTRY INTO FORCE**

**Re Section 86**

**Entry into force**

See the [Framework Regulations Section 63](#) on entry into force and repeal of regulations No. 2 for an overview of which regulations are repealed when these regulations enter into force.

## REFERENCE LIST

### 1. Acts

Act 17 June 2005 No. 62 relating to working environment, working hours and employment protection, etc. (Working Environment Act),  
Act 29 November 1996 No. 72 relating to the petroleum activities,  
Act 13 March 1981 No. 6 relating to protection against pollution and relating to waste,  
Act 2 July 1999 No. 64 relating to health personnel etc.,  
Act 5 August 1994 No. 55 relating to control of communicable diseases.

### 2. Regulations and guidelines issued by the authorities

#### The Ministry of Labour

Regulations 10 September 2009 No. 1173 relating to employers' use of approved company health services, and approval of company health services.

#### The Ministry of the Environment

Regulations 4 December 1997 No. 1443 relating to the prohibition against incineration at sea.

#### The Ministry of Health

The Ministry of Health and Social Affairs' Regulations 1 January 1995 No. 68 relating to water supply and drinking water, etc. were replaced by the [Ministry of Health and Social Affairs' Regulations of December 2001 relating to water supply and drinking water](#). (The Ministry of Health and Social Affairs is split as of 1 January 2001 into the Ministry of Social Affairs and the Ministry of Health.)

[The Norwegian Maritime Directorate's Regulations 4 September 1987 No. 860 concerning potable water system and potable water supply on mobile offshore units](#),

The National Institute of Public Health's guideline material for potable water systems.

#### The Directorate for Labour Inspection

[Regulations 29 April 1977 No. 7 relating to safety delegates and working environment committees](#), (ordering No. 321),

[Regulations 26 February 1998 No. 179 relating to welding, thermal cutting, thermal spraying, carbon arc gouging, soldering and grinding, with guidelines](#), (ordering No. 551),

[Regulations 20 January 1995 No. 156 relating to heavy and monotonous work](#), (ordering No. 531),

[Regulations 15 December 1994 No. 1259 relating to work with computer monitors \(the Computer Monitor Regulations\)](#), (ordering No. 328),

[Regulations 14 April 2000 No. 412 relating to development and use of indexes for substances hazardous to health and in activities \(the Index Regulations\)](#), last amended 29 June 2005, (ordering No. 565),

[Regulations 19 December 1997 No. 1322 relating to protection of employees against the hazards of working with biological factors](#), last amended 20 June 2002 No. 825, (ordering No. 550),

[Regulations 6 October No. 972 relating to safety signs and signals in the workplace](#), last amended 30 June 2003, (ordering No. 526),

[Regulations 24 May 1993 No. 1425 relating to use of personal protective equipment in the workplace](#), (ordering No. 524),

[Regulations 19 August 1994 No. 819 relating to construction, design and manufacture of personal protective equipment](#), last amended 20 February 2004, (ordering No. 523),

[Regulations 26 June 1998 No. 608 relating to use of work equipment](#), last amended 13. September 2004 No. 1291, (ordering No. 555),

[Regulations 30 April 2001 No. 443 relating to protection against exposure to chemicals in the workplace \(the Chemical Regulations\)](#), last amended 26 April 2005, (ordering No. 566),

[Regulations 26 April 2005 No. 362 relating to asbestos](#), last amended 16 November 2005,

[Regulations 6 July 2005 No. 804 relating to protection against mechanical vibrations](#), last amended 19 December 2006,

The Directorate of Labour Inspection's Administrative standards for pollution of the work atmosphere, Ordering No 361

The Directorate of Labour Inspection's production and use of polyurethane products (isocyanates), Ordering No. 536,

The Directorate of Labour Inspection's Guidelines relating to work at computer monitors, Ordering No. 528

**The Directorate for Civil Protection and Emergency Planning**

Regulations 28 April 2006 No. 458 relating to safety when working on and operating electrical installations, Regulations 14 December 1993 No. 1133 relating to qualifications for electrical professionals, last amended 1 March 2005 No. 190,

Regulations 20 August 1999 No. 955 relating to use and maintenance of electro medical equipment.

**The Norwegian Maritime Directorate**

Regulations 9 May 2003 No. 687 concerning qualification requirements and certification rights for personnel on Norwegian ships, fishing and catching boats and mobile facilities, last amended 18 October 2007.

**The Civil Aviation Authority**

Regulations of 26 October 2007 No. 1181 relating to continental shelf aviation – commercial air transport to and from helidecks on facilities and vessels at sea, last amended 28 January 2008.

Regulations of 28 January 2008 No. 81 relating to meteorological services for aviation.

**The Norwegian Pollution Control Authority**

Regulations 20 December 2002 No. 1817 relating to dangerous waste,

Regulations 20 December 2002 No. 1818 relating to ozon-depleting agents,

Regulations 1 July 2004 relating to limitation of pollution (the pollution regulations) Chapters 19, 22 and 36,

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Guidelines on reporting from offshore petroleum activities,

Guidelines for environmental monitoring of the petroleum activities on the Norwegian continental shelf.

**The Norwegian Board of Health**

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Conditions relating to radiation protection in connection with industrial radiography, Radiation Protection Brochure 20,

Conditions for radiation protection in connection with well logging, Radiation Protection Brochure 13b,

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Radiation protection regulations for use and handling of open radioactive sources,

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**3. Standards and guidelines**

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API RP 17B Recommended Practice for Flexible Pipe, 1 July 1998,

API RP 13B2 Recommended Practice Standard Procedure for Field Testing Oil-Based Drilling Fluids, 1 February 1998,

API RP 14B Recommended Practice for Design, Installation, Repair and Operation of Subsurface Safety Valve Systems, 1 July 1994.

**Det Norske Veritas (DNV)**

DNV OS-F101 Submarine Pipeline System, 2007,

DNV OSS-102 Rules for Classification of Floating Production, Storage and Loading Units, October 2008,

DNV RP G-101 Recommended Practice for Risk Based Inspection of Topsides Static Mechanical Equipment, 2000,

DNV RP F-101 Corroded Pipelines, 1999.

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**European Standard (EN)**

NS-EN 13306 Maintenance Terminology, April 2001.

### **International Electrotechnical Commission (IEC)**

IEC 61508 Functional safety of electrical/electronic/programmable electronic safety-related systems, 1<sup>st</sup> edition,

Part 1: General requirements, December 1998,

Part 2: Requirements for electrical/electronic/programmable electronic safety-related systems, May 2000,

Part 3: Software requirements, December 1998,

Part 4: Definitions and abbreviations, December 1998,

Part 5: Examples of methods for the determination of safety integrity levels, December 1998,

Part 6: Guidelines on the application of IEC 61508-2 and 61508-3, April 2000,

Part 7: Overview of techniques and measures, March 2000,

CEI/IEC 60300-3-11 Application guide – Reliability centred maintenance. First edition, 1999-03.

IEC 61892 Mobile and fixed offshore units – Electrical installations, Edition 1.0.

### **The International Marine Contractors Association (IMCA)**

The Association of Offshore Diving Contractors: AODC 035 Code of practice for the safe use of electricity under water, 1985.

### **International Maritime Organization (IMO)**

IMO/MSC circular 645, Guidelines for vessels with dynamic positioning systems, 6 June 1994.

### **International Organization for Standardization (ISO)**

ISO 13702 Petroleum and natural gas industries – Control and mitigation of fires and explosions on offshore production installations – Requirements and guidelines, 1999,

ISO 15544 Petroleum and natural gas industries – Offshore production installations – Requirements and guidelines for emergency response, 2000,

ISO 10417 Petroleum and natural gas industries - Subsurface safety valve systems - Design, installation, operation and repair, 2004,

ISO 17776 Petroleum and natural gas industries – Offshore production installations – Guidelines on tools and techniques for hazard identification and risk assessment, 2002,

NS-EN ISO 14224:2006 Petroleum, petrochemical and natural gas industries - Collection and exchange of reliability and maintenance data for equipment (ISO 14224:2006)

NS-EN ISO 20815:2008 Petroleum, petrochemical and natural gas industries – Production assurance and reliability management (ISO 20815:2008).

### **Norsk <Norwegian> Standard (NS)**

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### **NORSOK standards**

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[NORSOK D-010](#) Well integrity in drilling and well operations, revision 3, August 2004,

[NORSOK G-CR-001](#) Marine soil investigations, revision 1, May 1996,

[NORSOK N-001](#) Structural design, revision 4, February 2004,

[NORSOK N-002](#) Collection of metocean data, revision 1, September 1997,

[NORSOK N-005](#) Condition monitoring of loadbearing structures, revision 1, December 1997,

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[NORSOK S-002](#) Working environment, revision 4, August 2004,

[NORSOK U-100](#) Manned underwater operations, revision 3, August 1999,

[NORSOK Z-001](#) Documentation for operation (DFO), revision 4, April 2009,

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[NORSOK Z-007](#) Mechanical Completion and Commissioning, revision 2, December 1999,

[NORSOK Z-008](#) Criticality analysis for maintenance purposes, revision 2,

[NORSOK Z-015](#) Temporary equipment, revision 3, June 2004,

### **The Norwegian Oil Industry Association (OLF)**

OLF/NR Guidelines for safety and emergency preparedness training, revision 16, 1 January 2009,

OLF Recommended guidelines for the application of IEC 61508 and IEC 61511 in the petroleum activities on the Norwegian continental shelf, no. 070, revision no. 02, 29 October 2004.

OLF/NR-081 Recommended guidelines for remote-operated pipe handling, revision 2, 12 February 2009.

#### 4. Accessibility of regulations and documents

The acts, the central regulations (regulations that apply to the entire country) and the local regulations may also be found on "Lovdata's" web site at <http://www.lovdata.no/>

Det Norske Veritas' documents may be ordered from Det Norske Veritas, P.O. Box 200, 1322 Høvik, Norway, tel. +47 67 57 99 00, fax +47 67 57 99 12 or via <http://www.dnv.com/>

The Directorate for Labour Inspection's regulations may be ordered from Tiden Norsk Forlag A/S, P.O. Box 8813 Youngstorget, 0028 Oslo, Norway, or via <http://www.arbeidstilsynet.no/>

The Directorate for Fire and Explosion Prevention's regulations may be ordered directly from the Directorate for Fire and Explosion Prevention, P.O. Box 355 Sentrum, 3101 Tønsberg, Norway, tel. +47 33 39 88 00, fax +47 33 31 06 60 or via the e-mail address [postmottak@dbe.dep.no](mailto:postmottak@dbe.dep.no). They can also be downloaded from the web site at <http://www.dbe.no>

The National Institute of Public Health's guideline material may be ordered from the National Institute of Public Health, P.O. Box 4404 Torshov, 0403 Oslo, Norway, or via the web site at <http://www.folkehelse.no/fag/drikkevann/offshore.html>

The Civil Aviation Authority's regulations may be ordered from the Civil Aviation Authority, P.O. Box 8124 Dep., 0032 Oslo, Norway, tel. +47 22 94 20 00 or fax +47 22 94 23 90, or via <http://www.luftfartsverket.no/>

Norsk <Norwegian> Standards (NS), European (EN) and international (ISO) standards may be ordered via <http://www.standard.no/>

The NORSOK standards are available on the Internet at the following address: <http://www.nts.no/norsok/>

The Norwegian Petroleum Directorate's regulations are accessible at and may be downloaded from <http://www.npd.no/>

The Norwegian Maritime Directorate's regulations may be ordered from Elanders Publishing, P.O. Box 1156 Sentrum, 0107 Oslo, Norway, tel. +47 22 63 63 19, fax +47 22 63 65 94.

The regulations of the health authorities may be ordered from the Social and Health Directorate or Fylkeslegen <County Medical Officer> in Rogaland, P.O. Box 680, N-4003 Stavanger, tel. + 47 51 56 87 50 or fax + 47 51 53 00 79.

The Norwegian Pollution Control Authority's regulations may be ordered from the Norwegian Pollution Control Authority, P.O. Box 8100 Dep., 0032 Oslo, Norway, tel. +47 22 57 34 00, fax +47 22 67 67 06 or via <http://www.sft.no/>

The Norwegian Directorate for Product and Electrical Safety's regulations as well as technical electric standards from IEC and CENELEC may be ordered from Pronorm AS, c/o the Norwegian Electrotechnical Committee, P.O. Box 280, Skøyen, 0213 Oslo, Norway, tel. +47 24 12 41 00, fax +47 24 12 41 01, [ordre@nek.no](mailto:ordre@nek.no) or via <http://www.nek.no/>