GUIDELINES REGARDING THE ACTIVITIES REGULATIONS

(Last updated 18 December 2024)

Norwegian Ocean Industry Authority

Norwegian Environment Agency

Norwegian Directorate of Health

Norwegian Food Safety Authority

Norwegian Radiation and Nuclear Safety Authority

Havtil Norwegian Ocean Industry Authority

Guidelines regarding the activities regulations

CHAPTER I
Introductory provisions

Re Section 1
Scope

The scope of the regulations is limited in comparison with the scope of the Framework Regulations, so that they only apply to offshore petroleum activities.

The provision in the second subsection makes individual requirements in these regulations applicable also for facilities and equipment for conduct of manned underwater operations from vessels. For practical reasons, a choice has been made to have a general section on this, rather than repeating it in the individual provisions.

Re Section 2
Responsibilities

No comments.

Re Section 3
Definitions

No comments.

CHAPTER II
Arrangements pursuant to the working environment act

Re Section 4
Coordinating working environment committees for fields, and joint, local working environment committees for mobile facilities

The purpose of joint working environment committees is to ensure coordination of the individual enterprises' safety and environment work and to give all employees a genuine opportunity of taking part in and influencing the safety and environment work at their own workplace, regardless of their employment relationship. Reference is made to Section 7-2 of the Working Environment Act and provisions on safety delegates in Regulations 6 December 2011 relating to organisation, management and participation (in Norwegian only). These regulations also apply directly to the petroleum activities, with the specifications and limitations given in the regulations. The duty to establish joint working environment committees does not reduce the duty of the individual employer to establish a working environment committee at its own enterprise, cf. Section 34 of the Framework Regulations. The joint working environment committee will be superior to the working environment committees of the individual enterprises in matters related to the jurisdiction of the joint working environment committee.

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

Coordinating working environment committees for fields as mentioned in the first subsection, should be limited organisationally to ensure representation of all main activity areas, familiarity with the local conditions at the workplace and proximity to the work of the committee. If agreement cannot be reached among the operator, the contractors in the various main activity areas and the safety delegates as to establishing a coordinating working environment committee that comprises more than one field, cf. the

requirement regarding general agreement as mentioned in the first subsection, one of the parties can submit the issue to the Norwegian Ocean Industry Authority; which, after having considered all aspects of the matter, can decide if such a working environment committee is to be established.

The coordinating working environment committee should set up subcommittees for the individual facilities when the committee encompasses several facilities, cf. Regulations 6 December 2011 relating to organisation, management and participation (in Norwegian only). These regulations also apply directly to the petroleum activities, with the specifications and limitations given in the regulations.

The main activity areas mentioned in the second section, include 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 for participation as mentioned in the second subsection, the representatives should come from the principal undertaking and from the largest contractors in the various main activity areas. The employees' representatives should be elected by and among the safety delegates and main 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 can agree that the election will take place as a proportionate representation election or that these trade unions will appoint the employees' representatives for the area, cf. Regulations 6 December 2011 relating to organisation, management and participation (in Norwegian only). These regulations also apply directly to the petroleum activities, with the specifications and limitations given in the regulations. The coordinating 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 can 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 can represent the employer side for contractors that have been hired by the operator.

Coordination as mentioned in the last subsection, means coordination of safety and environment-related matters that are of significance for both mobile and permanently placed facilities on the field.

Coordinating working environment committee for fields as mentioned in the provision, also includes personnel working on simpler facilities and accommodated on vessels.

Re Section 5
Occupational health service

Reference is made to Section 3-3 of the Working Environment Act as regards occupational health services. The new Working Environment Act does not have the same requirements related to safety personnel as earlier versions. However, there remains a need for safety personnel in the offshore petroleum activities, and these are defined as part of the occupational health service. The occupational health service shall be approved by the Norwegian Labour Inspection Authority and shall have a free and independent position in working environment matters, cf. Section 3-3, first and third subsections of the Working Environment Act.

As far as the employers use of occupational health service is concerned, reference is, inter alia, also made to provisions on occupational health service in Regulations 6 December 2011 relating to administrative schemes (in Norwegian only) and Regulations 6 December 2011 relating to organisation, management and participation (in Norwegian only). These regulations also apply directly to the petroleum activities, with the specifications and limitations given in the regulations.

In order to fulfil the requirement for cooperation as mentioned in the second subsection, the operator or the party responsible for the operation of a facility, shall enter into agreements with the principal undertaking and the employers of the contractor employees regarding distribution of the working environment tasks carried out by the occupational health service on the facility.

Re Section 6
Medical examinations for employees

Long-term effects of working environment factors as mentioned in the first subsection, include long-term effects of hazardous noise.

For requirements related to health examinations as mentioned in the third subsection, reference is made to Section 3-1, second subsection, litera g and Section 10-11, seventh subsection of the Working Environment Act.

Health-hazardous exposure as mentioned in the fourth subsection, includes exposure to

a) hazardous noise,

b) isocyanates or air containing lead,

c) heightened ambient pressure,

d) asbestos dust,

e) carcinogenic substances.

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

Re Section 7
Registration of working hours

Working hours as mentioned in the first subsection, mean the actual time worked, including both normal working hours and any overtime.

To follow up working hours as mentioned in the first subsection, entails that the employer has a responsibility for own employees not working more than permitted, cf. Chapter VI of the Framework Regulations.

The working time registers shall be available to the employee representatives, cf. Section 10-7 of the Working Environment Act.

CHAPTER III
Health related matters

Re Section 8
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 Section 6 of the Framework Regulations.

When health personnel carry out tasks as mentioned in Section 5, the responsibility, authority and prioritisation of work tasks shall be clearly defined as mentioned in Section 13 of the Management Regulations.

In order to ensure satisfactory services, the rule stating that a physician shall have a special professional responsibility for the health service on the continental shelf, shall be continued. Physicians that

participate in the health service, should have general medical experience and insight. The responsible physician shall have Norwegian authorisation or license according to Sections 48 or 49 of the Health Personnel Act (in Norwegian only). The same applies to nurses.

In those cases where a nurse leaves the facility to accompany a patient to land, the requirement in the third subsection implies that compensating measures shall be implemented, and that the nurse returns to the facility as soon as possible.

In order to fulfil the requirement for adequate health services as mentioned in the first subsection, Chapter 5.1 of the NORSOK U-100N standard should be used for manned underwater operations.

Re Section 9
The health service's tasks

When performing the duties described in 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 (in Norwegian only), will apply. When a mobile facility that is registered in a national ships' register is laid up, the journals should be stored by the shipping company's onshore health service.

The health emergency preparedness as mentioned in litera c, should include

a) counselling and professional guidance for 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 10
Physician on-call

The requirement relating to arriving at the facility on the shortest possible notice, implies that systems shall be set up to enable rapid and efficient organisation of helicopter transport.

Re Section 11
Medicines and medical equipment

No comments.

Re Section 12
Communicable diseases

The physician should cooperate 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 13
Food and drinking water

Production, packing, storage, transport and presentation of food products shall be in accordance with the Food Act and appurtenant regulations, cf. Section 1-5 of the Petroleum Act.

The Ministry of Health and Care Services laid down Regulations relating to water supply and drinking water (in Norwegian only) for implementation of the Drinking Water Directive 98/83/EC, incorporated into the EEA Agreement on 25 January 2001.

In accordance with the Framework Regulations and pursuant to delegation from the Norwegian Food Safety Authority, the County Governor of Rogaland supervises that the provisions regarding food, water supply and drinking water are complied with in the petroleum activities.

According to the Drinking Water Regulations (in Norwegian only), the duty of the water supply system's owner in the petroleum activities rests with the operator and other participants in the petroleum activities, cf. Section 7 of the Framework Regulations.

When a water supply system delivers water to another water supply system, it is important to identify what is included in the individual water supply system owner's responsibility.

Re Section 14
Cleaning

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

a) it is assumed that a decision regarding the level of quality is made as mentioned in Section 11 of the Management Regulations,

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 29.

Cleaning is of great importance in preventing e.g. respiratory disorders. The relationship between dust and health problems in sensitive individuals and individuals with asthma and allergies is well documented. The purpose of cleaning is to reduce the occurrence of dust particles, allergens and infective agents. Another purpose of cleaning is to create general welfare and well-being.

Main cleaning of indoor areas should be carried out at least once per year.

CHAPTER IV
Preliminary surveys and installation

Re Section 15
Preliminary surveys

The following standards should be used in connection with preliminary surveys:

a) the NS-EN ISO 19901 Part 1 standard for **surveying natural conditions**,

b) Section 3 of the DNV-ST-F101 standard should be used for **route surveys**,

c) Chapter 7.7 of the NORSOK N-001 standard for **geotechnical surveys**, with the following addition: a quaternary geological description should be prepared if in a new area,

d) Chapter 5.7.2 of the NORSOK D-010 standard in the event of **shallow gas surveys**,

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 can be given to the stabilising effects of injection of gas or liquids.

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

In addition to preliminary surveys, baseline surveys shall be carried out as mentioned in Section 53 to map the environmental status.

Re Section 16
Installation and commissioning

In order to fulfil the requirement for **installation** as mentioned in the first subsection,

a) Section 10.1 through 10.9 of the DNV-ST-F101 standard should be used for steel pipeline systems,

b) Chapter 9 of the API RP 17B guidelines should be used for flexible pipeline systems.

Commissioning as mentioned in the second subsection entails e.g. that safety systems shall be function tested and verified. To satisfy the requirement, the NORSOK Z-007 standard should be used, with the following additions:

a) Section 10.10 to 10.13 of the DNV-ST-F101 standard should be used for steel pipeline systems,

b) Chapter 9.5.3 of the API RP 17B guidelines should be used for flexible pipeline systems,

c) Appendix H to the NORSOK R-003 standard should be used for lifting equipment,

d) Chapter 6.45 of the NORSOK D-001 (2012) standard should be used for drilling control systems,

e) the results of function tests are compared with performance requirements and relevant calculations,

f) In addition, Offshore Norge Guideline no. 070 is used where electrical, electronic and programmable electronic systems are used in the construction of the functions.

In order to fulfil the requirement for **technical condition** as mentioned in the third subsection, the NORSOK Z-006 standard should be used for preservation.

CHAPTER V
Transport and stay

Re Section 17
Transport

No comments.

Re Section 18
Stay on facilities

No comments.

Re Section 19
Accommodation and cabin sharing

For the design of cabins, refer to Section 58 of the Facilities Regulations.

A physical barrier means a function that can prevent or limit harm in the event of an unwanted incident. Other acute situations may, inter alia, constitute hazard and accident situations that have occurred, weather conditions that reduce the possibility of transporting personnel from the facility etc.

A turnaround/revision stop is a pre-planned period in which the operations on the facility have been shut down in order to carry out an accumulated portfolio of extensive and necessary maintenance, modifications, improvements, inspections etc.

Hook-up and start-up is the period from a new facility is placed on the field to hydro carbons are contained in the processing systems, and production has started. In this period, the facility will be commissioned; all systems hooked up, tested and started.

Cabin sharing is contingent upon compensation being given to those affected by it directly. It is an established practice between the parties to come up with solutions as far as compensation is concerned, and reference can be made, for that matter, to existing arrangements in this respect.

CHAPTER VI
Operational prerequisites for start-up and use

Re Section 20
Start-up and operation of facilities

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

Governing documents as mentioned in the second subsection, litera b, also mean the guidelines, procedures, plans and programmes that are prepared according to these regulations and the Management Regulations.

In order to fulfil the requirement for technical operations documents as mentioned in the second subsection litera b, Chapter 4 and Appendices A, C and D of the NORSOK Z-001 standard should be used. For drilling and well technical equipment, Chapter 5 and Annexes A, B and C of the NORSOK D-001 standard should also be used.

Re Section 21
Competence

There are also requirements to qualifications and training in the field of working environment in Regulations relating to conduct of work (in Norwegian only). They relate to

a) work with chemicals, cf. those regulations chapter 3, except for sections 3-23, 3-24 and 3-27,

b) work with asbestos, cf. those regulations chapter 4, except for section 4-4,

c) work involving risk of being exposed to biological factors, cf. those regulations chapter 6,

d) work with work equipment that requires additional carefulness, cf. RCW chapter 10,

e) maintenance of work equipment, cf. those regulations chapter 12,

f) work involving risk of being exposed to health detrimental noise or mechanical vibrations, cf. those regulations chapter 14, except for sections 14-1 – 14-7 included, and section 14-10,

g) work involving risk of being exposed to artificial optic radiation, cf. those regulations chapter 16,

h) safety signs and signalling, cf. those regulations chapter 22,

i) work imposing ergonomic strain, cf. those regulations chapter 23.

The requirement relating to ensuring competence implies, inter alia, that requirements are set for 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 for competence in the area of health, safety and working environment,

a) Chapter 6 of the NORSOK U-100N standard should be used for **manned underwater operations**,

b) Chapter 8 of the ISO 15544 standard should be used for **emergency preparedness and safety**, with the following addition: the Norwegian Oil and Gas' guidelines for safety and emergency preparedness training No. 002 should be used for safety and emergency preparedness training for personnel on facilities and vessels,

c) Chapter 5.9 of the NORSOK D-010 standard and 024 - Norwegian Oil and Gas' Guidelines no. 024 should be used for general competence within **drilling and well activities**, with the exception of Chapter 2.1.1 litera a and b on the requirements for examination. For posts as operators, training and examination in accordance with public curriculum VG2 well techniques should be undertaken. In addition, IOGP's guideline 476 on well control competence should be used. For pressure-balanced operations in wells Chapter 14 and Annex B of the NORSOK D-010 standard should also be used,

d) the following regulations and guidelines should be used for **electrical installations**:

    a) for personnel on facilities, the Regulations relating to electrical enterprises and qualification requirements for work associated with electrical installations and electrical equipment (in Norwegian only) Sections 6, 7, 8, 9 and 17 or Norwegian oil and gas' guideline 059 – recommended guidelines for professional electrical workers' competence (in Norwegian only). Alternatively, relevant professional certificates combined with Regulations relating to qualification requirements and certificates for seamen (in Norwegian only) Sections 37, 44 and 45 can be used,

    b) for the designated person responsible for the electrical installations as mentioned in Section 91, the Regulations relating to electrical enterprises and qualification requirements for work associated with electrical installations and electrical equipment (in Norwegian only) Sections 7 and 17.

Personnel operating the electrical installations, should have competence with respect to the electrical systems on board with associated control systems. The competence can be adapted to the duties of the personnel.

e) the Civil Aviation Authority's Regulations relating to flight weather service (in Norwegian only) should be used for weather observers who carry out routine weather observations (METAR),

f) the Norwegian Maritime Authority's Regulations relating to qualification requirements and certificates for seamen (in Norwegian only) should be used for **maritime operations**,

    a) the party responsible for operating the maritime systems on permanently placed, mobile facilities, should fulfil the qualification requirements for comparable positions in the regulations mentioned in litera g of these guidelines. Control room operators who operate maritime systems on such permanently placed, mobile facilities, should fulfil the requirements related to certificates for control room operators in the same regulations. The party responsible for stability on board, should have maritime competence equivalent to the offshore installation manager in the same regulations,

    b) in the event of operations with dynamic positioning Equipment Classes 2 and 3, those operating the equipment, should have competence in accordance with the regulations as mentioned in litera g of these guidelines, cf. Section 31. For operations in Equipment Class 1, one competent person is sufficient,

c) for facilities registered in a national ships' register, it is also assumed that maritime competence is documented in accordance with the requirements stipulated by the respective flag state authorities. The requirement in first subsection second sentence implies that jack-up facilities are staffed with personnel competent at and trained in operating the jacking systems in an emergency,

g) in connection with the **use of communication equipment**, it should be ensured that the person responsible for communication, cf. Section 80, second subsection, has sufficient experience as communications operator and valid GMDSS radio operator certificate (GOC or ROC depending on radio transmitting equipment on board), as well as necessary competence in areas such as emergency preparedness management, helicopter communication, meteorological observation and monitoring of the safety zones and maritime zones surrounding the facility.

h) 074 – Norwegian oil and gas' Recommended guidelines for helideck personnel should be used for qualifications for and training of helideck personnel,

i) 105 – Norwegian Oil and Gas Association's Recommended guidelines for scaffolding building should be used for work with and on scaffolding,

j) the standard NS 9600 should be used for rope access, except for requirements for certification of businesses and personnel.

For material handling and lifting operations, the training plans are published on the Norwegian Labour Inspection Authority's and the Norwegian Ocean Industry Authority's web pages.

As regards radio operators who operate maritime radio equipment, the competence requirements are specified in the license terms set by the Ministry of Transport and Communications.

As regards certificates as mentioned in the second subsection, 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 Norwegian Ocean Industry Authority, is the "Diving Industry Personnel Competence Standards", issued by the European Diving Technology Committee (EDTC) in cooperation with the International Marine Contractors Association (IMCA).

Re Section 22
Safety and working environment training pursuant to the Working Environment Act

As regards training as mentioned in the first subsection, reference is made to relevant provisions on safety delegates and working environment committees in Regulations relating to organisation, management and participation (in Norwegian only). These regulations also apply, with the limitations given directly in the regulations, to the petroleum activities. In addition, reference is made to the lawmirror (in Norwegian only) of the Norwegian Labour Inspection Authority, in which the requirement of the regulations that are being repealed upon entering into force of the new regulations in pursuance of the Working Environment Act, are included.

The training as mentioned in the second subsection should include aspects that are of significance to the overall workload of the individual, cf. Section 33.

In order to fulfil the requirement for radiation protection training as mentioned in the third subsection, the Norwegian Radiation and Nuclear Safety Authority's training requirements should be used. Radioactive sources are substances that emit alpha, beta and gamma radiation.

As regards requirements for training of safety delegates and members of working environment committees, reference is made to relevant provisions in Regulations relating to organisation, management and participation (in Norwegian only). These regulations also apply, with the limitations given directly in the

regulations, to the petroleum activities. In addition, reference is made to the lawmirror (in Norwegian only) of the Norwegian Labour Inspection Authority, in which the requirement of the regulations that are being repealed upon entering into force of the new regulations in pursuance of the Working Environment Act, are included.

Re Section 23
Training and drills

By necessary training and necessary exercises as mentioned in the first subsection, it is meant, among other things, that the personnel carry out training and exercises related to the specific facility where the work is to be performed.

In order to fulfil the requirements for training and drills

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 each period of stay. Everyone who takes part in emergency preparedness management and collaboration on emergency preparedness against acute pollution, 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 a period of stay. Mustering and evacuation routines should be included in the drill. At least one annual drill should be carried out for the emergency preparedness management and for personnel attending to collaboration on emergency preparedness against acute pollution. Drills related to collaboration on emergency preparedness against acute pollution should include skill training in the individual emergency preparedness functions and co-training between the operator and any agreement parties. The result of the drill should be evaluated.

When hired facilities or vessels are used, a drill should be conducted at an early point in time in accordance with a coordinated 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 onshore emergency preparedness organisations, as well as the supervisory authorities,

c) Chapter 9.2 of the NORSOK U-100N standard should be used for manned underwater operations,

d) Chapters 5.2.7, 5.9.1, 5.9.2, 6.5, 7.5, 8.5, 11.5, 12.5, 13.5, 14.1.2 and 15.5 of the NORSOK D-010 standard should be used for drilling and well activities, with the following addition: IOGP Guidelines 501 and 502 should be used for simulator training. Training and drills in well control on land and on board facilities should also be carried out in accordance with IOGP Guideline 628 on well control scenarios. In the drilling organizations, regular well control drills should be performed. The drills should include simulation of well kicks, volume control challenges and equipment failure related to the blowout preventer. The results of the drills should be evaluated.

The verification shall be performed in accordance with Section 19, first subsection, second sentence, and second subsection of the Framework Regulations.

Re Section 24
Procedures

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

The formulation of procedures as mentioned in the second subsection, 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 tested before use to check design and contents with regard to the intended functions.

In order to fulfil the requirement for procedures as mentioned in the second subsection, Chapter 8.2 of the NORSOK U-100N standard should be used for manned underwater operations.

Re Section 25
Use of facilities

Limitations for use as mentioned in the first subsection, can ensue from the loads that the facility and its individual parts shall be able to withstand, cf. Section 11 of the Facilities Regulations. The loads can 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 activities 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 also be taken into account, as well as movements in the event of loss of position due to anchor line breakage or drift, or because of dynamic positioning failure. Cf. Section 50 of the Facilities Regulations.

Facilities and parts thereof as mentioned in the first subsection, also include less complex facilities as mentioned in Section 6 of the Facilities Regulations and temporary equipment.

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

Status as mentioned in the second subsection, means, inter alia, the backlog of preventive maintenance and the outstanding corrective maintenance.

When using facilities, systems and equipment beyond the original intended period, the party responsible should systematically review the effects of degradation and changes that have occurred, and expected degradation and changes over extended periods. In order to fulfil requirements for the conditions for use for an extended period, updated knowledge, data and information should be taken into account. The assessments should be based on Norwegian Oil and Gas' guidelines 122. For structures and marine systems, the NORSOK N-006 standard should also be used. For classified facilities DNVGL-RU-OU-0300, Chapter 2, Section 1, point 5 should be taken into account.

Re Section 26
Safety systems

A safety system means technical barrier elements realised in a common system, cf. the Management Regulations Section 5 and the Facilities Regulations Section 3.

The requirement in the first subsection entails that the measures and limitations shall result in a risk reduction which is relevant, and which is proportionate to the barrier functions that are affected; examples of which are limitation in the level of activities, full shut down or other risk reducing measures.

The status of active safety systems, cf. the second subsection, shall be available in the central control room, cf. the Facilities Regulations Section 8.

To fulfil the requirements for measures and limitations as mentioned in the first subsection, Chapter 7.7 of the IEC 61508-1 standard and Chapter 7.6 of the IEC 61508-2 standard , and Chapters 10 and 11 of Norwegian Oil and Gas' Guidelines no. 070 should be used for electrical, electronic and programmable electronic safety systems.

Re Section 27
Critical activities

Critical activities can be

a) work on pressurised, electrified or hydrocarbon-bearing systems,

b) hot work,

c) work with explosives or substances that self-ignite,

d) work on radioactive sources,

e) work that entails risk of acute pollution,

f) work that entails disconnection of safety systems,

g) lifting operations, cf. Section 92.

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

The limitations can be requirements for implementing compensatory measures in connection with executing an activity, or duration or frequency limitations for executing a special type of activity.

In order to fulfil the requirement for critical activities, Chapters 5.4, 5.5 and 5.6 of the NORSOK D-010 standard should be used for drilling and well activities.

Re Section 28
Simultaneous activities

Activities as mentioned in the first subsection, can be production activities, drilling and well activities, and maintenance and modification activities, including activities as mentioned in Section 27.

Measures as mentioned in the second subsection, can 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 executing activities as mentioned in the second subsection, the effect of mutual dependence between different activities should, inter alia, be taken into account.

In order to fulfil the requirement for simultaneous activities, Chapters 5.4, 5.5 and 5.6 of the NORSOK D-010 standard should be used for drilling and well activities.

CHAPTER VII
Planning and execution

Re Section 29
Planning

The requirement for planning as mentioned in the first subsection entails, inter alia, ensuring that the activities are executed within the limitations mentioned in Chapter VI.

Re Section 29a
Storage, handling and use of explosives

In order to ensure that explosives do not go off unintentionally as mentioned in the second subsection, electrically triggered perforating equipment for use in drilling and well activities should be protected against the effects of radio waves and other electrical fields, cf. the requirements for electrical compatibility in Section 77.

In addition, explosives should be protected against falling loads and fires during storage.

Re Section 30
Safety clearance 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 safe job analysis should be conducted when sub-activities are not covered by procedures, the procedures can conflict with each other, or the activities are new to the personnel involved.

As regards conducting safe job analyses, Appendix C.3 to the NS-EN ISO 17776 standard should be used in the area of health, safety and working environment. With regard to conducting a job safety analysis, see, inter alia, the last paragraph in C.3.3, the party responsible for carrying out the work and the workers who actually carry it out, should participate, possibly also the persons responsible for the system and area.

To fulfil the requirements for measures, the Guidelines for Offshore Marine Operations (GOMO) should be used for this type of activities. In respect of measures relating to discharge of drainage water, refer to GOMO Chapter 7.8 Discharges from Facilities.

To fulfil the requirements for measures, Chapters 5.11, 9.2, 9.3, 9.5 and 9.6 of the NORSOK D-010 standard and Norwegian Oil and Gas' Guideline no. 117 should be used for drilling and well activities in the event of handover of wells between units, with the following addition: the wells' barrier status should be tested and verified.

In respect of tandem transfer of hydrocarbons from an FPSO or FSU to a shuttle tanker, it should be assessed whether to reduce other shipping activities to or from the FPSO or the FSU.

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

Re Section 31
Monitoring and control

Conditions as mentioned in the first subsection, can be conditions and parameters as mentioned in Sections 17 and 33 of the Facilities Regulations, status for other safety systems, ongoing activities and implemented compensatory measures.

The requirement relating to continuous monitoring as mentioned in the first subsection, entails that the personnel shall not be assigned tasks that can impair their handling of the control and monitoring functions, cf. also Section 21 of the Facilities Regulations and Section 18 of the Management Regulations.

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

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 relating to monitoring and control, the NORSOK U-100N standard, Chapters 8.3 and 8.5.1, should be used for manned underwater operations.

For monitoring and control of the external environment, see Chapter X.

Re Section 32
Transfer of information at shift and crew changes

Shift and crew change means daily shift changes and replacement 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 33
Organisation of work

The organisation as mentioned in the first subsection, should, inter alia, take into account the need for individual adaptation, including work capacity and age. Cf. also Chapter IV of the Facilities Regulations and Sections 18 and 19 of the Management Regulations.

Hazardous exposure and unfortunate loads as mentioned in first subsection, mean exposure and loads that result from ergonomic conditions, chemical influences, radiation, noise, vibrations, climatic conditions and psychosocial conditions. Factors that can influence the psychosocial working environment, can be the interaction between requirements relating to work performance, the employee's perception of control over own work and social support in the working environment.

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

a) elimination of the causes of the exposure,

b) technical measures that reduce the likelihood of exposure,

c) technical measures that reduce exposure,

d) operational measures that reduce exposure.

Organisation as mentioned in the first and second subsections, should be a continuous process where both employers and the employees strive to improve the working environment, cf. also Section 23 of the Management Regulations.

Organisation of work should be based on accessible knowledge of the characteristics and needs of humans, so that the interaction between people, technology and organisation is optimised, cf. Section 13 of the Management Regulations. The ISO 6385 standard should be used in such organisation.

The requirement relating to carrying out as much as possible of the work in the daytime as mentioned in the fourth subsection, entails that night work shall be limited to tasks and functions necessary to maintain prudent operations.

The requirement relating to necessary rest and restitution as mentioned in fourth subsection, entails that all personnel can sleep undisturbed and normally alone, cf. also Section 19, and that necessary transport in offshore periods, including helicopter transport, takes place during working hours.

For work above ground, Chapter 17 in the Regulations relating to conduct of work (in Norwegian only) should be used.

For work in tanks, reference is made to relevant provisions in regulations under the Working Environment Act, stipulated 6 December 2011.

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 34
Ergonomic aspects

Regulations laid down by the Ministry of Labour and Social Affairs 6 December 2011, pursuant to the Working Environment Act, and entering into force 1 January 2013, contain, inter alia, further provisions on ergonomic aspects, including heavy and monotonous work and work at computer screens. Clarification of the scope as far as the petroleum activities are concerned, is directly evident from the individual regulations. In addition, reference is made to the lawmirror (in Norwegian only) of the Norwegian Labour Inspection Authority, in which the requirement of the regulations that are being repealed upon entering into force of the new regulations in pursuance of the Working Environment Act, are included.

In connection with the organisation as mentioned in the first subsection, the NORSOK S-002N standard, Chapters 6.2, 6.3.2, 6.3.3, 7.8, and 7.9 should be used.

For information, see also Section 20 of the Facilities Regulations.

Re Section 35
Psychosocial aspects

Aspects as mentioned in the first sentence, can include

a) requirements relating 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 utilisation 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.

In order to fulfil the requirement for a good psychosocial working environment, the standard ISO 45003 may be used.

Re Section 36
Chemical health hazard

In order to avoid exposure as mentioned in the first subsection, the Regulations relating to conduct of work should be used.

As regards CO and CO_2 as mentioned in second subsection, the NORSOK U-100N standard, Chapters 5.2.3.2 and 5.2.3.3, should be used. In addition, special consideration should be given to potential release of, from materials under high pressure, chemical substances that are detrimental to health.

For information, see also Section 15 of the Facilities Regulations.

Re Section 37
Radiation

Radiation means ionising and non-ionising radiation.

Handling also means handling during hazard and accident situations.

Regulations of 16 December 2016 No. 1659 relating to radiation protection and use of radiation (the Radiation Protection Regulations) (in Norwegian only) apply to the petroleum activities also.

To fulfil the requirement relating to avoiding exposure, the Norwegian Radiation and Nuclear Safety Authority's

a) Guideline 1 relating to industrial radiography,

b) Guideline 9 relating to industrial control sources in fixed installations as well as use of radiation for research purposes, and

c) Guideline 13 relating to radioactive pollution and radioactive waste from the petroleum activities should be used in addition.

For information, see also Section 26 of the Facilities Regulations.

Re Section 38
Noise

Exposure action value as mentioned in this section, does not replace, but shall be seen in the context of, requirements related to risk reduction, cf. Section 11 of the Framework Regulations.

The risk assessment as mentioned in the third subsection, shall in particular take into account

a) exposure level, type and duration and exposure to impulse noise such as impacts and bangs,

b) effect on health and safety of employees who are especially exposed to risk,

c) any effect on the employees' health and safety due to interaction of noise and chemical substances and between noise and vibrations in the work, to the extent possible,

d) indirect effects on the employees' health and safety due to the noise's effect on the ability to register warning signals or other sounds that shall be audible to reduce the risk of accidents,

e) the manufacturer's information on the noise level of the working equipment,

f) whether alternative working equipment exists which gives lower noise exposure,

g) exposure to noise beyond regular working hours which falls under the employer's responsibility,

h) relevant information from health surveys, and other published information, to the extent possible, and

i) availability of hearing protection with sufficient sound reduction.

Information and training for the employees as mentioned in the fifth subsection, should especially include

a) the risk assessment made, and the measures implemented,

b) limit values and action values,

c) measurement results,

d) when there is a need for hearing protection and training in correct use, risk related to noise and how signs of hearing injuries can be discovered and how they shall be reported,

e) under which terms they are entitled to medical examination and the purpose of the examination,

f) ensure working methods that limit noise exposure to the extent possible, and

g) the risk of health injury potentially caused by the use of working equipment.

Re Section 39
Vibrations

Regulations laid down by the Ministry of Labour and Social Affairs 6 December 2011, pursuant to the Working Environment Act, and entering into force 1 January 2013, contain, inter alia, further provisions on protection against mechanical vibrations. Clarification of the scope as far as the petroleum activities are concerned, is directly evident from the individual regulations. In addition, reference is made to the lawmirror (in Norwegian only) of the Norwegian Labour Inspection Authority, in which the requirement of the regulations that are being repealed upon entering into force of the new regulations in pursuance of the Working Environment Act, are included.

For information, see also Section 24 of the Facilities Regulations.

Re Section 40
Outdoor work

In order to set criteria for choosing protective measures for outdoor work, the NORSOK S-002 standard chapter 7.9 and A.8 in Annex A should be used.

For information, see also Section 22 of the Facilities Regulations.

Re Section 41
Safety signs and signalling in the workplace

(This section has been repealed. The guidelines have been removed.)

Re Section 42
Personal protective equipment

(This section has been repealed. The guidelines have been removed.)

Re Section 43
Use of work equipment

(This section has been repealed. The guidelines have been removed.)

Re Section 44
Risk information during execution of work

No comments.

CHAPTER IX
Maintenance

Re Section 45
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 function, cf. definition 2.1 (with associated terminology) in the NS-EN 13306 standard.

Maintenance includes activities such as monitoring, inspection, testing, trial and repair, and keeping things tidy.

Functions also mean safety functions, cf. Section 3 of the Facilities Regulations. For these functions, the requirement relating to maintenance entails that performance shall be ensured at all times, cf. Section 8 of the Facilities Regulations.

Facilities or parts of facilities also mean temporary equipment.

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

Re Section 46
Classification

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

Fault (cf. functional fault), failure mode, failure cause and failure mechanism as mentioned in this section, are defined in the NS-EN 13306 standard.

Re Section 47
Maintenance programme

The maintenance programme can consist of sub-programmes for inspection, testing, preventive maintenance, etc., cf. Section 45.

The requirement relating to prevention as mentioned in the first subsection, entails also that the programmes shall be available at start-up, cf. Section 20, second subsection, litera b. When preparing the maintenance programme as mentioned in the first subsection, the NORSOK Z-008 standard, the NS-EN ISO 20815 standard Appendix I and the NEK IEC 60300-3-11 standard can be used in the area of health, working environment and safety.

For activities as mentioned in the second and third subsections, the following should be used in the area of health, working environment and safety:

a) the standards ISO 13702, Appendix C5, and IEC 61508, and Norwegian Oil and Gas' Guideline 070 is used for **safety systems**,

b) **the emergency shut-down system** is verified in accordance with the safety integrity levels set on the basis of the IEC 61508 standard and Norwegian Oil and Gas' Guideline 070. For plants that are not covered by this standard and this guideline, 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** and **maritime systems**. See also Section 50,

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 can be performed on a representative selection,

f) the NORSOK R-003 standard, Appendices G and H should be used for maintenance of **lifting appliances and lifting gear**,

g) the standards NORSOK D-010, Chapters 5.2.3 and 5.2.4 and table C.9, ISO 10417 and ISO 10423, Chapter 9 should be used for w**ell control and well intervention equipment, subsurface safety valves and christmas trees**, with the following addition: the requirement in the second subsection of the regulations also includes the condition of barrier elements and pressure integrity in wells,

h) the IEC 61892 series should be used for **electrical installations with associated equipment**. The performance of the emergency power system and emergency lighting system should be verified by a full-scale functional test at least once a year. The test should include all parts of the safety function,

i) the DNV-RP-G-101 and DNV-RP-G109 guidelines may be used to establish the inspection programme for **process plants and auxiliary systems**.

Re Section 48
Planning and priorities

In order to fulfil the requirement relating to time limits as mentioned in the second subsection, the time limits should be calculated from the time when a failure mode is identified as having occurred or is under development.

Re Section 49
Maintenance effectiveness

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

The standards NS-EN ISO 14224 and NS-EN ISO 20815, Appendix E, should be used when registering data as mentioned in the first subsection, including failure data and maintenance data.

Re Section 50
Special requirements for technical condition monitoring of structures, maritime systems and pipeline systems

Floating facilities which shall be inspected and maintained at sea without regular dry-docking, should use DNVGL-RU-OU-0102, Chapter 2, Section 1, Part 12.

For information about the second subsection, see Section 17 of the Facilities Regulations.

The examinations as mentioned in the fourth subsection, should particularly be carried out with a view towards projected new facilities and use of facilities beyond their original planned lifetime in mind.

Failure modes as mentioned in the fifth subsection, mean both external and internal failure modes.

Re Section 51
Specific requirements for testing of blow out preventer and other pressure control equipment

To fulfil the requirement relating to testing, complete overhaul and recertification so that the equipment can fulfil its required functions, the NORSOK D-001 standard, Chapter 7.5.3 and 7.5.4, cf. Section 49 of the Facilities Regulations, and the NORSOK D-010 standard, Chapters 5.2.3.5 and 5.2.3.6 as well as tables C.4, C.14, C.19, C.21, C.32, C.37, C.38, C.47, C.53, C.57, C.58 og C.59 and Appendix A, DNVGL-OS-E101 as well as DNV-RP-E101 should be used. See Section 47 as regards this type of equipment in well interventions and overhaul of subsea wells.

Complete overhaul and recertification as mentioned in the second subsection, 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. The complete overhaul does not necessarily imply a full dismantling of all the parts, cf. design, operation and maintenance history, lifetime and associated risk assessments (classification) etc., but must be carried out in a way that will be eligible for recertification.

CHAPTER X
Monitoring the external environment

Re Section 52
General requirements to environmental monitoring

Chapter X contains supplementary provisions on how to monitor the external environment. The term operator is defined in the Framework Regulations Section 6: Anyone executing on behalf of the licensee the day to day management of the petroleum activities.

Environmental monitoring of the Norwegian continental shelf includes both monitoring of benthic habitats (sediments, soft and hard benthic fauna) and monitoring of the water column. The purpose of the environmental monitoring offshore is to achieve:

a) an overview and control of pollution and impacts on the external environmental from the petroleum activities

b) an overview of the general condition and development around the individual facilities and in the regions (trends).

The results from the monitoring shall provide factual data based information that can be used as a basis for necessary actions to be taken on the continental shelf. The results from the monitoring can also be used for:

a) assessments of the risk for environmental damage and ecological effects

b) verification of models for calculating environmental risk as a function of the existing and expected discharges from the offshore activities

c) verification of laboratory research

d) preparation of reports in accordance with national administration plans, including environmental indicators.

In addition, the results can be reported in accordance with international treaties; to OSPAR, for instance.

Results from completed environmental monitoring, baseline surveys and impact assessments for field development will, together with an overview of discharges, form the basis for planning and implementation of further environmental monitoring. In order to obtain an optimum description of the conditions around the individual facilities and in the region, it is important that the monitoring programmes are designed in light of the existing discharge situation. This means that the operators in the planning stage shall consider and include relevant pollution components 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, annual reporting in accordance with the Management Regulations Section 34 c and defined challenges from the Environmental Impact Assessments be seen as a whole.

The cooperation requirement as mentioned in the third subsection, entails that several operators cooperate so that the monitoring activities are managed in relation to regional risk, and arrangements are made for using the best available technology (BAT). The requirement relating to cooperation also entails that there shall be agreements between operators that have partly or completely identical areas of impact for pollution from their own activities. It is vital that the monitoring is conducted in accordance with a defined framework to ensure comparable results between years, and between different regions. The Guidelines for environmental monitoring of the petroleum activities offshore (in Norwegian only) will provide the operators with a template 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 all operators shall carry out, and the operators themselves shall decide whether there is need for additional or other surveys on the individual field or in the region. Any deviations 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.

For monitoring and control relating to proper implementation as regards health and safety, see Section 31.

It may also be relevant to monitor areas in the beach zone and onshore if these areas are affected by the petroleum activities.

The Norwegian Environment Agency and the Norwegian Radiation and Nuclear Safety Authority may, as for the other operator activities, audit the environmental monitoring in their areas. This applies to all stages of the activities, from planning of the surveys through to the various operators' internal use of the results.

Plans for and results from monitoring of the external environment shall be reported to the Norwegian Environment Authority, and to the Norwegian Radiation and Nuclear Safety Authority for radioactivity, in accordance with Section 34 of the Management Regulations.

Re Section 53
Baseline surveys

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

The scope of the surveys as mentioned in the first subsection, litera a, depends inter alia on the distance to areas that have been surveyed earlier, and benthic conditions.

The scope of the surveys as mentioned in the first subsection, litera b, depends inter alia on which vulnerable environmental values (species and habitats) that may be expected in the area. Vulnerable environmental values may include coral reefs, sponges, spawning grounds (sandeel).

The Norwegian Environment Agency may, following a concrete in-each-case assessment, alter the duration of a baseline survey. Experience has shown that it is mostly a question of prolonging the duration.

If the Environment Agency alters the duration of a baseline survey, it will be effectuated as an administrative decision, which must be notified beforehand and justified, and which can be appealed against.

Re Section 54
Environmental monitoring of benthic habitats

As a whole, the monitoring of the benthic habitats shall contribute to explaining whether a station or a larger area around the individual facility or in a region is affected by discharges from the activities. The results from the environmental monitoring shall 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 a lower frequency, based on pollution loads, history and regional knowledge.

Since 1997, Norway has used the terms “reference stations” and “regional stations” in connection with monitoring of the seabed on the Norwegian continental shelf. Both types of stations normally cover the background level of selected components in the area, and the reference stations can, in given instances, function as regional stations and vice versa. Reference stations and regional stations in one and the same region are used to estimate background levels 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 offshore (in Norwegian only).

Plans for environmental monitoring of the benthic habitats shall be submitted to the Norwegian Environment Authority in accordance with Section 34 of the Management Regulations.

Re Section 55
Environmental monitoring of the water column

The environmental monitoring of the water column is carried out so that possible effects from the discharges of the petroleum activities on the pelagic environment, can be documented. The requirement on monitoring of the water column is not limited to monitoring of produced water, but also comprises relevant added chemicals and leakage and leaks from the seabed, plus other relevant discharges, if any.

The frequency of monitoring in the field is every three years. The monitoring should include hydrographical measurements, chemical measurements and monitoring of organisms in cages and free-living organisms. The scope of the monitoring must be discussed with the Norwegian Environment Agency.

There are currently few internationally accepted standardised methods for monitoring of biological effects in the water column. A number of methods are, however, under development, and many have been tested in the field. This primarily applies to various biomarkers which are being used more and more for monitoring impact and, gradually, for monitoring condition. Still, measurement of concentration levels in selected organisms will see further use in the environmental monitoring around petroleum facilities on the Norwegian continental shelf. The operators shall participate actively in the testing and development of suitable methods for environmental monitoring. The period between two monitoring activities in the field shall be used, hence, to develop and qualify new methods. The Norwegian Environment Agency should be consulted on significant items during the process, by presenting progress and plans for the coming year in an annual planning meeting as outlined in the Guidelines for environmental monitoring of the petroleum activities offshore (in Norwegian only).

As the monitoring is still at the stage of methods being developed and tested, the guidelines will be regularly revised. As soon as suitable methods for monitoring the effects of long-term discharge impact will be established, a selection of these shall be used in a more standardised programme.

Plans for environmental monitoring of the water column shall be submitted to the Norwegian Environment Authority in accordance with Section 34 of the Management Regulations.

Re Section 56
Follow-up of monitoring results

By environmental monitoring of offshore petroleum activities irregularities and deviations connected with the activities, can be detected. Examples of such deviations can be abnormally high THC values, which cannot be linked to known discharges. The operator has a duty to determine the reason for the deviation and take corrective action if necessary.

Deviations shall be reported to the Norwegian Environment Authority and the Norwegian Radiation and Nuclear Safety Authority as soon as possible, cf. Section 34 of the Management Regulations.

Re Section 57
Detection and mapping of acute pollution

The purpose of detection and mapping of acute pollution is to ensure that the information concerning the pollution is sufficient, so that the correct actions are taken in order to stop and limit the pollution, cf. Section 48 of the Framework Regulations, and that acute pollution is notified, reported and reported in writing, cf. Section 29 and Section 34 of the Management Regulations. Acute pollution is defined in Section 38 of the Pollution Control Act (in Norwegian only). Overall, compliance with the various requirements related to detection must ensure that all acute pollution is detected including smaller leaks that can produce effects over time.

The operator shall take measures against acute pollution that has been discovered, cf. Section 48 of the Framework Regulations and Section 46, first subsection of the Pollution Control Act, cf. Section 7, second subsection.

The requirements for detection and acute pollution monitoring include all types of pollution (oil, cuttings, oily water, chemicals, gas etc.) and all parts of the environment (sea surface, water column, seabed and air). Monitoring of injection activity is also covered by this provision.

This section applies to detection and mapping of pollution due to unwanted incidents and accidents, and failure of barriers to prevent and stop pollution at the source. Requirements for barriers to detect abnormal conditions, etc. and safety functions are in accordance with Section 5 of the Management Regulations, cf. the Facilities Regulations Section 5, first paragraph, letter h and Section 8. These are general requirements for safety under the Petroleum Act, and they also include barriers and systems for preventing and halting acute pollution. Barriers and safety functions such as process monitoring, including pressure, flow and temperature measurements, and detection equipment on facilities below the sea surface will also provide important information for detection and mapping of acute pollution. It is therefore expected that information from the barriers and safety functions will also be included in the detection and mapping system as mentioned in the second subsection of this section.

The operator must assess the types and amounts of pollution that can be detected / mapped using the barriers and safety funtions mentioned above, and which require other methods. Other methods / elements that should be part of the detection and mapping system, are

a) detection and mapping equipment located on facilities, seagoing vessels, aircraft and satellites,

b) detection and mapping equipment by facilities under the sea surface,

c) associated competence for interpreting information from the different sensors,

d) visual observation of the sea surface carried out by personnel on facilities, seagoing vessels and aircraft. Observations must be based on expertise for visual quantification of oil and chemicals by means of area measurement and use of colour thickness charts for the relevant oil or chemical type,

e) model tools for predicting transport and spreading of acute pollution,

f) meteorological services necessary to support detection and mapping.

Continuous monitoring may include all or part of the facilities and areas around. For example, through radar systems on the surface and leak detection systems that cover parts of facilities on the seabed.

The fifth subsection clarifies the obligation to cooperate on emergency preparedness as stipulated in the Framework Regulation Section 21.

Mapping of thickness distribution as mentioned in the sixth subsection, shall be done both to estimate discharges and as a basis for selecting a fighting strategy. For visual observation on the sea surface, oil and oil quantity estimation should be made according to Bonn Agreement Oil Appearance Code (BAOAC).

The requirements for continuous improvement laid down in Section 23 of the Management Regulations also mean that the operator shall contribute to the necessary further development of tools for the detection and mapping of acute pollution.

Section 57 of the Activities Regulations replaces, from 1 January 2019, the requirements for discovering acute pollution that is given in the permits for petroleum activities pursuant to the Pollution Control Act. In the permits where such requirements have been made for the detection of acute pollution, the requirements will continually be taken out in connection with changes being made to these permits.

Re Section 58
Environmental surveys in the event 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 measures for optimal combating of the pollution, and in the restoration phase with regard to identification of environmental values 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.

The Norwegian Environment Agency's *Guidelines for environmental surveys in marine environment following acute oil pollution (TA-2995/2012) (in Norwegian only)* provide a framework for the contents of such surveys.

A survey report shall be submitted to the National Coastal Administration and the Norwegian Environment Agency in accordance with Section 30 of the Management Regulations.

Re Section 59
Characterisation of oil and condensate

To be able to characterize as soon as possible as mentioned in the first subsection, in the event of a discovery, the oil or condensate should immediately be sampled with a sample volume sufficient to characterize physical and chemical properties. If possible, the sample volume should be sufficient to perform meso scale weathering studies. Whenever possible, the results of the meso scale weathering studies should be available prior to start-up of production drilling.

Prior to new activities in the same reservoir or in the event of field development, a full weathering study should normally also be completed.

The results of the characterization constitute, inter alia, an important basis for implementing simulations of drift and dispersion, cf. Section 17 of the Management Regulations, and for obtaining a correct description of the efficacy of current emergency preparedness material, cf. Section 42 of the Facilities Regulations.

Weathering as mentioned in the second subsection, means how the chemical and physical properties of the oil/condensate change over time as a result of the external conditions it is subjected to. Relevant external conditions include expected wind and wave conditions on the location, and the possible occurrence of ice on the sea surface.

Oil and condensate that can occur as acute pollution as mentioned in the third subsection, also mean blends of different production streams.

Re Section 59a
Analysis of radioactivity in formation water

The results of the radioactivity analyses shall form the basis for assessments in the impact assessment in a future development of the discovery, and later for an application for the discharge of naturally occurring radioactive substances from the field.

CHAPTER XI
Emissions and discharges to the external environment etc.

The operator must obtain a permit from the Norwegian Environmental Agency for petroleum activities under Chapter 3 of the Pollution Control Act (in Norwegian only). Application for permit under the Pollution Control Act is subject to Chapter 36 of the Pollution Control Regulations (in Norwegian only), and a fee is fixed for the Environmental Agency's processing relating to applications for permits pursuant to Chapter 39 of the Pollution Control Regulations (in Norwegian only).

The regulations' general requirements for the petroleum activities on the continental shelf apply to all operators. The permits under the Pollution Control Act will normally contain conditions that are specific and adapted to each activity. Chapter 36 of the Pollution Control Regulations (in Norwegian only) gives further provisions on the processing of permits under the Pollution Control Act. The Norwegian Environment Agency has described further expectations for the content of applications and expected processing time in the Guidelines for applications regarding offshore petroleum activities: https://www.miljodirektoratet.no/ansvarsomrader/forurensning/petroleum/for-naringsliv/soknadsveileder-petroleum/. Chapter 39 of the Pollution Control Regulations (in Norwegian only) gives provisions for fees for work with permits.

Re Section 60
Discharge of produced water

From 1 January 2028, the following changes in Section 60, second subsection, second sentence will enter into force: In any event, the oil content shall not exceed 15 mg oil per litre of water as weighted average for one calendar year. Reference is made to regulation amending the regulations relating to conducting petroleum activities (the Activities Regulations) of 18.12.2024 (in Norwegian only).

Section 11 of the Framework Regulations describes principles for risk reduction, including requirements regarding the use of best available techniques (BAT).

The Management Regulations set specific requirements for follow-up and improvement in Sections 19-23, including requirements for continuous improvement. In addition, the Norwegian Environment Agency shall be informed in case of changes in risk of pollution cf. Section 34 subsection one, litera b of the Management Regulations.

Oil content as mentioned in the second subsection, means content of dispersed oil in undiluted water decided in accordance with Section 70.

In accordance with principles of risk reduction and management (Chapters II and III of the Framework Regulations and Chapter II of the Management Regulations), the responsible party shall establish a management system that ensures compliance with the HSE regulations and continuous improvement. This entails that the responsible party shall establish and develop goals and strategies for compliance with the regulatory requirement to keep the oil content as low as possible. Section 55 of the Facilities Regulations does also state that facilities for treatment of produced water shall be designed in such a way that oil content in each discharge is as low as possible.

OSPAR Recommendation 2012/5 is implemented in Norwegian legislation in Section 60 of the Activities Regulations. The Recommendation includes requirements to perform risk assessments on discharge of produced water, and that best available measures shall be selected in order to reduce risk.

Risk assessments should be performed with methods based on expected environmental concentrations and expected non-harmful concentrations (PEC/PNEC) on substance level. The method based on Environmental Impact Factor may be used.

“Significant changes in the discharge of produces water” mentioned in third subsection, includes:

a) the introduction of new measures expected to have an impact on the risk level, for example reinjection, chemical substitution and treatment measures

b) increased discharges as a result of changes in injection rate

c) significant changes in the composition of produced water, for example as a result of inclusion or exclusion of well streams or chemicals

d) 50 % changes in amount of oil to sea, oil concentration or chemicals with significant contribution to the risk, applying to installations with EIF between 10 and 50

e) 15 % changes in amount of oil to sea, oil concentration or chemicals with significant contribution to the risk, applying to installations with EIF higher than 50.

When assessing how the treatment facilities shall operate to minimize the environmental impact, the oil content of the discharge shall be evaluated against inter alia use and discharge of chemicals.

The risk assessments shall be reported in accordance with Section 34 litera c of the Management Regulations.

According to Section 11 of the Framework Regulations, «the responsible party shall choose the technical, operational, or organizational solution that (…) offer the best results. In addition, Section 23 of the Management Regulations and Section 15 of the Framework Regulations demand continuous improvement. Therefore, the Norwegian Environment Agency expect that the results from the risk assessment are applied further in new BAT assessments and potential measures to reduce the environmental risk for each field.

New technology assessments are performed for all installations according to the results from risk assessments, but the level of detail may depend on the magnitude of the risk contribution or the oil content in the water discharged to sea. The assessments shall include measures to reduce the total discharged

volume of water, for example with techniques such as water shut-off, downhole separation and injection, as well as treatment measures.

For fields with high risk contribution or with high oil content in the water discharged to sea, detailed assessments of costs associated with the various measures should be compared to the environmental benefits. For fields with a low risk contribution, the same degree of details in cost/benefit assessments will normally not be necessary, in particular as regards implementing of expensive technology. The Norwegian Environment Agency will consider the definition of low/high risk contribution when results from risk assessments are available. When technology is available for treating other substances than dispersed oil, the Norwegian Environment Agency may require such treatments.

Technical solutions that can reduce the environmental impact of discharges of oily water, may be downhole solutions for reduced water production, reinjection or new/altered technical elements in the treatment plant, for example.Assessments should be reported in accordance with Section 34 litera c of the Management Regulations.

Chemicals following the produced water to sea after treatment, shall be covered by the permit in accordance with Section 66 first subsection. Adding chemicals that do not contain a specific function in the production or treatment process, is not allowed.

Measures as mentioned in the sixth subsection, may include monitoring of oil and seabirds, or mechanical dispersion, for example. There may also be other technical measures to reduce the visible oil on the sea surface, changing the discharge point or temporarily reduce the discharges of produced water, for example.

Re Section 60a
Discharge of oily drainage water and other oily water

From 1 January 2026, the following changes in Section 60a, second subsection, second sentence will enter into force: In any event, the oil content shall not exceed 15 mg oil per litre of water as weighted average for one calendar year. Reference is made to regulation amending the regulations relating to conducting petroleum activities (the Activities Regulations) of 18.12.2024 (in Norwegian only).

Oily drainage water means hosing-down water from the facility decks and rain water. Other oily water means all oily waters not regarded as drainage water, produced water and displacement water. Requirements for handling oil and chemical-containing water from clean-up and start-up of wells, are given in Section 69.

In connection with the ban on adding unused chemicals, including chemical residues and other waste in drainage water and other oily water to be discharged to sea pursuant to this section, reference is made to Section 66, second subsection, and to Chapter 22 of the Pollution Control Regulations (in Norwegian only).

Re Section 60b
Discharge of oily displacement water

Displacement water means seawater in storage cells for oil. The seawater enters the storage cells when oil is loaded for further export and escapes to sea when the storage cells are filled with new oil.

The requirement for a maximum oil content in displacement water discharged to the sea applies at all times, i.e. the oil content in each individual sample taken and analysed must not exceed 15 mg/l. The oil content must be documented in such a way that the requirements for representativeness as specified in Section 70 of the Activities Regulations are complied with.

Re Section 61
Emissions to air

Energy plants with a total nominal thermal input of 50 MW and greater are covered by the Pollution Regulations (in Norwegian only) Chapter 36 Part IV, which implements the Industrial Emissions Directive (IED), Directive 2010/75/EU.

Chapter 36 of the Pollution Regulations (in Norwegian only) stipulates that the best available techniques (BAT - Best Available Techniques) shall be used in the formulation of conditions in permits pursuant to the Pollution Control Act. What is considered to be BAT and associated emission levels, is shown in Commission Decision (EU) 2017/1442 for large combustion plants.

Emissions of CO_2 from combustion or other quota-related activities in accordance with Section 1-1 of the Greenhouse Gas Quota Regulations (in Norwegian only) are regulated through a special permit for emissions that are subject to quotas.

Re Section 61a
Energy management

The requirement shall ensure that energy efficiency is maintained and improved continuously. An energy management system is a prerequisite for operating in accordance with BAT, cf. Section 11 second subsection of the Framework Regulations. For new fields, the energy management system, including a flaring strategy, shall be in place when the field starts production. The energy management system shall be updated regularly.

Re Section 61b
Energy efficiency

For new facilities, the requirement implies that the production facilities and the energy facilities shall be designed with the aim of achieving as energy efficient production and operation as possible throughout the lifetime of the field. For existing facilities, the requirement implies that continuous measures shall be taken to improve energy efficiency. Examples of measures are power co-operation, increased utilization of surplus energy, use of solutions that work efficiently also by changes in production volume, operational optimization and reduced flaring. NORSOK S-003 provides guidance for energy efficient design and operation of processes and energy facilities.

Re Section 62
Ecotoxicological testing of chemicals

Re first subsection

A chemical is a generic term for chemical substances and/or substance mixtures.

The term “substance” implies, as referred to in OSPAR Guidelines for Completing the HOCNF, as the chemical element and its chemical compound in the natural state or obtained by any production process, including any additive necessary to preserve the stability of the product, and any impurity deriving from the process used. Solvents, which may be separated without affecting the stability of the substance or changing its composition, are excluded. Substances were previously called component.

All chemicals used in the petroleum sector, are also subject to the Product Control Act (in Norwegian only) with regulations, including REACH Regulations, CLP Regulations, Products Regulations and Biocidal Products Regulations.

OECD’s principles for good laboratory practice as mentioned in first section, imply the principles described in OECD Series on Principles of Good Laboratory Practice (GLP) and Compliance Monitoring (ISSN:

2077-785X). Norwegian Accreditation (NA) is the Norwegian agency for the accreditation of technical matters, including GLP as mentioned in the first subsection.

The requirements for ecotoxicological testing and documentation in this section apply to chemicals used in the petroleum industry (see Section 6 litera g of the Framework Regulations), including those associated with exploration, normal operation and maintenance during the extraction and processing of oil, gas and condensate, shutdown of installations and plugging of wells, including chemicals for use in well control incidents.

Re second subsection

"OECD guidelines for testing of chemicals" refers to The OECD Guidelines for the Testing of Chemicals.

Test no. 306 (Biodegradability in Seawater) is found in OECD Guidelines for Testing of Chemicals, section 3 (1981, ISSN: 2074-577x (online)). The guideline describes two potential tests – "shaker flask test" and "closed bottle test". Only one test is required.

"Substances that are known to be toxic to microorganisms" denotes in particular biocides. For such substances, recommendations in Annex II of OECD 1992 302 should be followed.

If biodegradation data from fresh water tests are used, a safety factor of 0.7 should be applied, for recalculation of biodegradation.

Re third subsection

"OECD guidelines for testing of chemicals" refers to The OECD Guidelines for the Testing of Chemicals.

Test no 117 (Partition Coefficient (n-octanol/water), HPLC Method) and 107 (Partition Coefficient (n-octanol/water): Shake Flask Method).

The potential for bioaccumulation is given as the partition coefficient octanol/water, Log Pow.

OECD test no. 107 is a suitable method for substances that are water soluble and which do not dissolve or dissociate, but are not suitable for lipophilic organic substances, complex substances organo metals or surface active agents. The method can be used to determine LogPow-values from -2 to 4.

OECD test no. 117 is suitable for complex substances, but not suitable for strong acids and bases, metal complexes, substances reacting with the eluent or surface active substances. The method can be used to find log Pow-values from 0 to 6. If the results from OECD test no. 117 demonstrate several values, all peaks with an area above 5 % in the chromatogram shall be stated. The highest value of these is defined as the substance's Log Pow.

"Substances that cannot be tested according to standardized methods", denotes in particular surface active substances.

If log Pow is greater than or equal to 3, it is assumed that the substance bioaccumulates, unless experimentally determined bioaccumulation data (BCF) indicate the opposite.

Professional evaluation of bioaccumulation potential and estimated values for log Pow should be stated in the HOCNF comment field.

Re fourth subsection

With ISO 10253:2006 implies ISO 10253:2006: Marine algal growth inhibition test with *Skeletonema costatum* and *Phaeodactylum tricornutum*.

With "ISO 14669:1999" implies ISO 14669:1999: Determination of acute lethal toxicity to marine copepods (Copepoda, Crustacea).

“OSPAR’s protocol for testing of chemicals used in the offshore oil industry” refers to "OSPAR Protocols on Methods for the Testing of Chemicals Used in the Offshore Oil Industry (reference number: 2005-11 (a revised version of agreement 1995-07))". Testing of acute toxicity on fish is described in "Part B: Protocol for a Fish Acute-Toxicity Test", while testing of toxicity on *Corophium* sp is described in "Part A: A Sediment Bioassay using the Amphipod *Corophium* sp".

Corophium sp. is a benthic amphipod, and is therefore an appropriate model organism to study toxicity of substances that could be expected to end up in sediments.

Re fifth subsection

“Harmonised Offshore Chemical Notification Format", refers to annex 1 in OSPAR Recommendation 2010/3 on a Harmonised Offshore Chemical Notification Format (HOCNF). With "part 2" implies Part 2: Ecotoxicological information.

To fill out the HOCNF, see OSPAR Guidelines for Completing the Harmonised Offshore Chemical Notification Format (HOCNF) (Reference number: 2010-05) and Supplementary guidance for the completing of harmonised offshore notification format (HOCNF) for the Norwegian sector. Submitting the HOCNF to the Norwegian Environment Agency is not required, however, it has to be available upon request.

Re sixth subsection

By lubricants is meant grease, sealing oils, gear oils and engine oils.

Chemicals used in auxiliary system, pipelines and water-injection, including chemicals that remain in the well and chemicals that will follow the hydrocarbon stream even though they are not intended for discharge on the field, are covered by requirements for ecotoxicological testing and documentation.

It is emphasized that chemicals used in installations and equipment for the production of fresh water, including drinking water, such as seawater evaporators and reverse osmosis installations, are comprised by the testing and documentation requirements. Requirements for water treatment chemicals in drinking water are given in the Drinking Water Regulations (in Norwegian only).

Chemicals used exclusively in the household and in the living quarter of the facility, are not covered by the requirements for testing and documentation.

In the context of testing of bioaccumulation and biodegradability of dope, the grease part is considered to be a substance. All components of grease must be expressed in HOCNF.

Chemicals in fire water systems have since 1st of January 2013 been covered by requirements for ecotoxicological testing and documentation.

Accidental emissions of chemicals occur in closed systems. If the system volume is large, it will mean there is potential for large emissions. Testing and ecotoxicological documentation shall ensure that there is available information about chemicals in such systems in case of accidental emissions. Consumption, as mentioned in litera b, denotes the first filling of the system, replacement and all other use of the chemical.

Chemicals in closed systems with no discharge to the external environment, may for example be BOP-liquid or hydraulic liquid. Closed systems shall not have discharges to the sea.

For testing and documentation of dispersants and shoreline cleaning agents, the requirements in Chapter 19 of the Regulations relating to pollution control (in Norwegian only) .

Re seventh subsection

Additive packages in chemicals in closed systems with a usage above 3000 kg per year that are not discharged to the sea, and additive packages in sealing oils for seawater pumps that are discharged to the sea, can be named additive packages as a single substance in the HOCNF, even if consisting of several substances.

Impurities from the production process as mentioned above, which comprises more than 1 percent of the substance mixture, are considered as substances to be mentioned in the HOCNF, but are not subject to testing requirements.

The exact names of the strong acids and bases, which are exempt from the requirement for ecotoxicological testing with the corresponding CAS number, are given in the table below.

Substance	**CAS no.**
Potassium hydroxide	1310-58-3
Sodium hydroxide	1310-73-2
Hydrochloric acid	7647-01-0
Sulfuric acid	7664-93-9
Nitric acid	7697-37-2
Phosphoric acid	7664-38-2

Polymers exempt from testing and ecotoxicological documentation requirements in the form of HOCNF Part Two, are considered non-degradable, but not toxic or accumulable. The operator may choose to provide data if it considers this relevant to the environmental assessments.

"Tax-exempt diesel used as a chemical" refers to diesel which is used as an oil phase in separators in connection with shutdowns and maintenance operations offshore, for washing of safety-critical equipment, for well treatment and as a pipeline chemical, among other things. Diesel used as a fuel is exempted from the requirements for testing and documentation pursuant to the sixth subsection, litera f.

Re Section 63
Categorisation of substances and chemicals

A chemical is a generic term for chemical substances and/or mixtures of substances.

“Substance” refers to, as in OSPAR Guidelines for Completing the HOCNF; the chemical element and its chemical compound in the natural state or obtained by any production process, including any additive necessary to preserve the stability of the product, and any impurity deriving from the process used.

Solvents which may be separated without affecting the stability of the substance or changing its composition, are excluded. Substances were previously called component.

The priority list can be found in www.miljostatus.no/prioritetslisten.

"OSPAR's Priority List" refers to OSPAR List of Chemicals for Priority Action (Revised 2011) (Reference number 2004-12).

Substances covered by REACH's list of candidates can be found in https://www.echa.europa.eu/candidate-list-table. The exception from classification for mixtures in black category is sustained for substances where the content of substance is below the lowest concentration limit for classification, cf. the Regulations on classification, labelling and packaging of substances and mixtures (CLP) (in Norwegian only).

Mutagenic and reprotoxic substances denote substances that damage genetic material in gametes (Muta) category 1A and 1B and reprotoxic substances (Repr) 1A and 1B, cf. the Regulations on classification, labelling and packaging of substances and mixtures (CLP) (in Norwegian only).

When assessing the properties of degradation products for substances with moderate degradation, results from testing of inherent biodegradability, among other things, may be used together with other available information on substances. The assessment should be documented. In the industry, the terms y1, y2 and y3 and respective yellow subcategories 1, 2 and 3 are often used.

If there is a lack of knowledge about the degradation products, these should, in accordance with the precautionary principle, be assumed to fall into subcategory 3.

"OSPAR's PLONOR list", as mentioned in the second subsection, refers to OSPAR List of Substances Used and Discharged Offshore which Are Considered to Pose Little or No Risk to the Environment (PLONOR) (OSPAR Agreement 2013-06).

REACH Annex V includes substances that are exempted registration in REACH. Entry 8 and 9 in Annex V include naturally occurring substances. Some of these are classified as non-hazardous and can be equated with substances on the PLONOR list. Substances in Entry 7 can be treated likewise if it can be demonstrated that they are not hazardous, in accordance with Directive 67/548/EEC with regard to the marine environment, and not OBT or vPvN as given in the criteria in REACH Annex XIII, or identifies in accordance to Article 59 (1) or Article 57 (f). If questions whether a substance which is covered in REACH Annex V is in green category, the Norwegian Environment Agency shall be contacted for an assessment.

Re Section 64
Environmental assessments of chemicals

For environmental assessment of chemicals that are exempt from the requirement for ecotoxicological testing in accordance with Section 62, seventh subsection, the operator should assess the toxicity, biodegradability and potential for bioaccumulation of these chemicals. The assessment should be documented and based on test data or literature data.

The assessment of the chemicals as mentioned in this section, should also include necessary transportation and handling of the chemicals as waste. Assessment of the fate of the chemicals in the environment may be included under "other matters of significance".

Re Section 65
Choice of chemicals

The duty to substitute chemicals which may harm health or the environment with less damaging alternatives, also follows from Section 3a on substitution duty in the Product Control Act (in Norwegian only).

Impurities as mentioned in the second subsection, mean, inter alia, heavy metals in weight materials.

Separate plans for substitution of chemicals in the red and black category, and the yellow category, subcategories 2 and 3, shall be reported annually to the Norwegian Environment Agency in accordance with Section 34, first subsection, litera c.

Re Section 66
Use and discharge of chemicals

The Product Control Act and regulations, including the REACH Regulations, the CLP Regulations, the Products Regulations and the Biocides Regulations, apply to all chemicals used in the offshore petroleum activities.

The use and release of chemicals must be reported in accordance with Section 34 (c) of the Management Regulations.

Re first subsection

A permit pursuant to Chapter 3 of the Pollution Control Act is required for discharges of chemicals in connection with offshore petroleum activities. Stipulated limit values and requirements for discharges of chemicals will be included in Chapter 4 of the license.

The basis for permits as mentioned in the first subsection, is the results from testing, categorization, assessment and choice of chemicals as mentioned in Sections 62, 63, 64 and 65.

Ordinary pollution from homes, offices and the like, including sanitary wastewater and chemicals added to the drinking water distribution system, is permitted under Section 8 of the Pollution Control Act (in Norwegian only). Use and discharge of chemicals from this site of the business does not therefore require authorization pursuant to Section 66. Requirements for water treatment chemicals in drinking water are given in the Drinking Water Regulations.

It is emphasized that chemicals used in plants and equipment for the production of fresh water, including drinking water, such as seawater evaporators and reverse osmosis systems, are covered by the obligation to obtain a permit for use and discharge under Section 66.

The Product Control Act (in Norwegian only) with regulations, including REACH, CLP, product and biocidal products, applies to all chemicals used. This means, among other things, that there are requirements for substitution.

Hypochlorite produced on the facility, is subject to the requirement for permit to use and discharge under this section.

In activities that entail use and/or discharge of chemicals in amounts which the operator considers to be very small and not covered by applicable permits, the Norwegian Environment Agency may be contacted to clarify the need for a permit.

Although the operator has been granted permission to use and discharge chemicals, it shall be considered whether there are less environmentally harmful alternatives in accordance with the substitution obligation in Section 3a of the Product Control Act and Section 65 of these regulations.

Use and discharge of chemicals shall be reported in accordance with Section 34 litera c of the Management Regulations.

For use of dispersants and beach cleaners that are to be used to combat acute oil pollution, see Chapter 19 of the Pollution Regulations (in Norwegian only). See also Sections 73 and 79 of the Activities Regulations.

Re second subsection

The use of chemicals is legal pursuant to section 66, second paragraph. This means that the use of, for example, lubricants, chemicals in closed systems, laboratory chemicals, fuels, paints and other surface treatment agents, including those supplied in aerosol cans, and gas tracers not emitted, is legal under the regulations. Lubricants mean greases, sealing oils, transmission fluids and engine oils.

Discharges to the sea from closed systems is not allowed. Motors and pumps operating in seawater and discharging lubricants, including seawater lift pumps and thrusters, are not considered closed systems. This means that there is a requirement for a permit for the discharge of chemicals pursuant to the first paragraph for such engines and pumps.

The ban on discharges of unused chemicals also applies to chemicals on the OSPAR PLONOR list.

Re fourth subsection

The duty to reduce the use and discharge to the extent possible, also applies to chemicals for which there are no specific use and discharge limits, cf. Section 11 of the Framework Regulations.

Re sixth subsection

“Plastics” means solid, synthetic polymers that are insoluble in water.

Re seventh subsection

This provision legalises some cases of field testing that will not be permitted within the permit under the Pollution Control Act (in Norwegian only). Chemicals that are field tested according to this provision, are also exempted from the requirement for ecotoxicological documentation, cf. Section 62, sixth subsection, letter e. Testing of chemicals can also take place within the scope of the permit as long as the chemicals are environmentally as good or better alternatives than chemicals that are in use, and the consumption and emission amounts in the permit are not exceeded. Other field testing requires a special permit pursuant to the Pollution Control Act (in Norwegian only).The duration limitation in the eighth subsection letter a implies that the total duration of the field test may be longer than 14 days for discontinuous use. As a basis for finding an assumed colour category for field testing of chemicals, the operator must assess the toxicity, biodegradability and potential of bioaccumulation. The assessment should be documented and based on test or literature data.

Re Section 66a
Use and discharge of radioactive trace elements

Although the permission is given for use and discharge of a certain amount of radioactive trace elements, emissions shall be as low as possible.

Re Section 67
Chemicals for use in well control events

By well control events is meant failure of one or more well barriers where the failure results in unintentional flow of formation fluid into the well, cross flow into the well or outflow to the external environment, see the guidelines to Section 86.

The chemicals shall be tested, evaluated and selected as mentioned in Sections 62, 64 and 65.

The overview is not required to be sent to the Norwegian Environment Agency, but it shall be available upon request.

Re Section 68
Discharge of cuttings, sand and other solid particles

This section regulates the handling of solid fractions. Particles in suspension, such as those supplied with produced water through the process and purification plant, are covered by Sections 60, 60a, 60b and 69. When such particles are separated from the water stream, they will be covered by this section.

By cuttings, sand and other solid particles is meant solid material from the formation. Mineral based weight material, sand and other solid particles that are added, are considered chemicals, cf. the fourth subsection. By organic drilling fluid is meant mineral oil-based and synthetic drilling fluid.

Normally, the Norwegian Environment Agency will not impose more detailed requirements for handling cuttings with pendants of water-based drilling fluid. However, this will be assessed in areas with vulnerable environmental values, such as sandeels, corals and sponges.

Re Section 68a
Subsea rock installation

Subsea rock installation that does not satisfy the requirements of this section must be covered by a permit under the Pollution Control Act (in Norwegian only). In case of doubt, the Norwegian Environment Agency decides whether a permit is required.

In this context, vulnerable environmental values are particularly habitat types on the Norwegian Red List for habitat types, such as coral reefs and coral forests, sponge and sea poultry communities on OSPAR's list of threatened and/or declining habitats, as well as bottom-dwelling fish such as sand eels.

The operator must be able to document the assessments made to comply with the requirements in first subsection litera a, b and c. The documentation shall be available to the Norwegian Environment Agency upon request, cf. the Framework Regulations Section 23 last subsection.

Re Section 68b
Movement of masses

Intentional movement of masses at the sea floor that does not satisfy the requirements of this section must be covered by a permit pursuant to the Pollution Control Act. In cases of doubt, the Norwegian Environment Agency decides whether a permit is required.

Intentional movement of masses includes traditional dredging to alter the bottom topography or remove contaminated seabed, and the movement of masses as part of construction activities. This includes all removal/relocation of sediment for the placement of facilities and equipment on the seabed.

In this context, vulnerable environmental values are particularly habitat types on the Norwegian Red List for habitat types, such as coral reefs and coral forests, sponge and sea poultry communities on OSPAR's list of threatened and/or declining habitats, as well as bottom-dwelling fish such as sand eels.

The operator must be able to document the assessments made to comply with the requirements in first subsection litera a and b. The documentation shall be available to the Norwegian Environment Agency upon request, cf. the Framework Regulations Section 23 last subsection.

Re Section 69
Formation testing, clean-up and start-up of wells

By formation testing, this section refers to testing of a single well's production or injection properties for a maximum of ten days of flow, cf. the Regulations relating to Resource Management in the Petroleum Activities (Resource Management Regulations) Section 3.

By clean-up of wells, this section refers to activity carried out on producing wells where hydrocarbons and other liquids are brought to the surface to clean the well and perforations before the well is put into production or back into production.

Emissions from formation testing and start-up and clean-up of wells shall be minimized to the extent possible, given that the purpose of the activity is achieved.

Minimization as mentioned in the first and second subsections, shall be understood as minimization given that the purpose of the activity is achieved and the measures are in a reasonable proportion to the damage and inconveniences to be avoided. The assessment of the choice of method and planning of the activity should include energy consumption, emission components and emission amounts to air and sea, chemical use, generation and handling of waste and risk of acute pollution, both at sea and with any handling on land. The time and place of the activity in conjunction with the presence of vulnerable environmental values should also be included in the assessments.

Measures to minimize emissions may include access to tanks with sufficient storage capacity and continuous testing of the test facility to ensure optimal combustion.

Measures as mentioned in the third subsection, may include monitoring of oil and seabirds, or mechanical dispersion to remove oil from the sea surface.

The test facility, including equipment for the separation of water, oil and gas and flares, shall comply with the requirements for the use of best available techniques (BAT), cf. the Framework Regulations Section 11, second paragraph, cf. the Facilities Regulations Section 5 and 10.

Well clean-ups and start-up of production wells can lead to operational challenges and the risk of reduced cleaning efficiency in the production water treatment plant to a greater or lesser extent. These are activities that are planned and where operational challenges and disturbances in the treatment plant can be prevented, including through good planning based on knowledge of expected content and amounts of chemicals in the fluid flow, impact on the treatment plant and the establishment of methods for operating the processing plant in various operations.

If oil and chemical-containing water from clean-up and boilers are landed, the colour categories and chemical assessments used for offshore petroleum activities cannot be transferred directly to the operations on land. The environmental significance may be different from land discharges, in shallow waters

with other natural resources and recipient conditions. This also applies to chemicals in the green category, which are considered not to present a risk of damage to open-sea discharges.

If oil and chemical containing water is sent to recipients on land outside Norway, the operator is obliged to ensure that the treatment of the water at the recipient is legal, but the requirement for permit will not always be relevant.

Re Section 70
Measurement and calculation

Measurements and calculations must be suitable for documenting that requirements for use, discharge and injection are complied with, and ensure that correct information is reported, cf. the Management Regulations Section 34 first subsection litera c.

To ensure representative measurements, the operator should regularly consider the location of sampling points, the choice of sampling methods and frequencies and regularly check and calibrate measuring equipment. Quality assurance of measurements will include quality assurance of both measuring equipment, methods and implementation of the measurements.

The measurement and calculation programme as mentioned in the third subsection, must be set up so that the scope of the measurements is sufficient for the purpose of measurements and calculations, including ensuring representative measurements. The measurement and calculation programme should include descriptions of and justifications for selected methods and frequencies of measurements and calculations. By selected methods is meant both measuring equipment, sampling points, sampling methodology and analysis method. The various steps involved in determining emissions should be described. The steps will normally include volume flow measurements, sampling, analyses and calculations. As part of the descriptions of quality assurance routines, descriptions of the frequency for measuring equipment control and calibration, and the selected frequency for participation in CLT and / or verification of analyses with an accredited laboratory, should be included. The programme should also include a description of the alternative method if the method primarily selected is unavailable. If Norwegian standards do not exist, international standards can be used.

Requirements for measuring and calculating waste are given in Section 72.

Re Section 70a
Measuring the discharged amount of radioactive substances

In order to fulfil the requirement for carrying out analyses in the fourth subsection, the Norwegian Radiation and Nuclear Safety Authority's Guideline for radioactive pollution and radioactive waste from oil and gas industry (in Norwegian only) should be used.

Re Section 70b
Measurement of NOx emissions from combustion units

Re first subsection:

"Energy needs" refers to the need for electric power, mechanical power, and heat. "Normal operation" means operation for more than 500 hours per calendar year. Regular test-runs and short-term operation to cover energy needs in the event of unforeseen events are nevertheless not considered normal operation, even if the number of operating hours may sometimes exceed 500 per year.

The requirement to carry out accredited emission measurements for turbines and engines on the individual installation includes, but is not limited to, models specified in the right-hand column in the table below.

Turbine supplier	Turbine type	Model
Allison	SAC	Allison 570
General Electrics	SAC	GE LM1600
General Electrics	SAC (GE LM2500 base)	GE LM2500 PE
General Electrics	SAC (GE LM2500 base)	GE LM2500 GE
General Electrics	SAC (GE LM2500 base)	GE LM2500 PC
General Electrics	SAC (GE LM2500+ (plus))	GE LM2500+ PK
General Electrics	SAC (GE LM2500+ (plus))	GE LM2500+ PV
General Electrics	SAC (GE LM2500+ (plus))	GE LM2500+ GK
General Electrics	SAC (GE LM2500+ G4)	GE LM2500+ G4 SAC
General Electrics	SAC	GE LM6000 PA
Ruston	SAC	Ruston Tornado
Siemens (Alstom)	SAC	Alstom EGT
Siemens	SAC	Siemens Avon
Siemens	SAC	Siemens EGT Typhoon
Siemens	SAC	GT-35
Siemens	SAC	Siemens RB211-24GT-RT62
Siemens	SAC	Siemens RB211-G-RT62
Siemens	SAC	Siemens RB211-24G
Siemens	SAC	SGT 100
Siemens	SAC	SGT 200
Siemens	SAC	SGT 500
Solar	SAC	Solar Centaur
Solar	SAC	Solar Mars 90/100
Solar	SAC	Taurus 60S
General Electrics	DLE	GE LM1600
General Electrics	DLE (GE LM2500 base)	GE LM2500 PJ
General Electrics	DLE (GE LM2500 base)	GE LM2500 GJ
General Electrics	DLE (GE LM2500+ (plus))	GE LM2500+ PR
General Electrics	DLE (GE LM2500+ (plus))	GE LM2500+ GR
General Electrics	DLE (GE LM2500+ (plus))	GE LM2500+ GY

Turbine supplier	Turbine type	Model
General Electrics	DLE (GE LM2500+ G4)	GE LM2500+ G4 DLE
General Electrics	DLE	GE LM6000 PB
General Electrics	DLE	GE LM6000 PD
General Electrics	DLE	GE LM6000 PF
Solar	DLE	Taurus 60
Solar	DLE	Titan 130
Engine supplier	**Engine type**	**Model**
MAN B&W	Konvensjonell	8L48/60
Wärtsilä	Konvensjonell	VASA 16V32GD
Wärtsilä	Konvensjonell	W9L32

The requirement to carry out accredited emission measurements per model also applies to boilers.

"Representative loads" refers to the load intervals within which the combustion units on the installation (both those where measurements are done and others) are operated during a normal operating year.

Re second subsection:

In order to be able to report annual NOx emissions from low-NOx turbines without CEMS or PEMS, the operator must establish a methodology for quantifying emissions between measurement campaigns, for example based on measured fuel gas volume and a documented relationship between loads and emission concentrations.

Re third subsection:

If the discrepancy between results of PEMS and accredited measurements exceeds the stipulated requirements, the operator must clarify the reason for the discrepancy and implement corrective measures. The operator must subsequently be able to document how discrepancies have been handled, which corrective measures have been implemented and that the implemented measures have had the desired effect, if necessary, by making new measurements within a reasonable time frame.

The operator should also make corrections for significant systematic errors that are detected, even if the deviation from accredited measurements is less than existing requirements, as well as document how such errors have been followed up.

Re Section 71
Injection of produced water and other liquid or solid material into subsea geological formation

Injection of liquid or solids into dedicated injection wells can be environmentally sound solutions. Injection of produced water for pressure support or for disposal is usually a better environmental solution than discharges to sea. Injection of cuttings drilled with oil-based drilling fluid is, under certain conditions, a preferred environmental solution over transport to land for treatment and disposal.

Added chemicals that accompany the well streams that are injected, shall be permitted to be used in accordance with the regulations Section 66.

The operator must be able to document that the storage formation and injection strategy have been chosen on the basis of geological properties, modeling and simulation of the injection process for planned volumes, and of analysis of the risk of leakage to the seabed.

What is injected and in what quantities must be reported in accordance with the Management Regulations Section 34 first subsection litera c.

It is not appropriate to regulate the injection of oil- or chemical-containing volumes based on the content of specific chemicals. Instead, injection of liquids and solids is regulated on the basis of how they are generated. Primarily, permission will be granted for the injection of liquid and solid substances that are directly related to well operations.

The operator has a general duty to avoid as far as possible that waste is generated, cf. the Activities Regulations Section 72. This also applies to volumes to be injected.

For injection into subsea geological formations of CO_2, see Chapter 35 of the Pollution Control Regulations (in Norwegian only).

CHAPTER XII
Waste etc.

Re Section 72
Waste

Handling of waste as mentioned in the second subsection, shall be done in accordance with the Pollution Control Act (in Norwegian only). Reference is made to Section 7 on the duty to avoid pollution, Section 28 on prohibition against litter and Section 32 on handling of production waste. Unless otherwise specifically determined, regulations relating to waste from the petroleum activities are applicable to the extent they are suitable. In this connection, reference is made to Chapter 11 on hazardous waste of the Waste Regulations (in Norwegian only) and Chapter 21 of the Pollution Control Regulations (in Norwegian only), Prohibition against incineration at sea, and Chapter 22 on dredging and dumping in sea and watercourses.

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

Waste oil as mentioned in the fifth subsection, means used lubricants and similar oils (used in engines, gear boxes, hydraulic systems, transformers, switches etc.) that can no longer be used as originally intended.

Waste must be reported in accordance with the Management Regulations Section 34 first subsection litera c.

Re Section 72a
Leaving of waste, equipment and other material

Prohibition of leaving waste and other material on the seabed as mentioned in the first subsection, is a clarification of the Pollution Control Act (in Norwegian only) Sections 7 and 28. The Norwegian Environment Agency will pursue a strict practice in processing applications for leaving waste and other material and will only exceptionally grant permission for this. The operator is recommended to contact the Norwegian Environment Agency in connection with the assessment of whether abandonment in specific cases will cause damage and inconvenience to the environment and before the application for abandonment is

submitted. With regard to the prohibition of dumping, reference is made to the Pollution Control Regulations (in Norwegian only), Chapter 22.

The Norwegian Environment Agency may grant exemptions from the provision in the second subsection in accordance with the Framework Regulations Section 70. This can only be granted if special and unforeseen reasons as a result of structural damage or similar challenges, can be documented. The Norwegian Environment Agency is bound by the OSPAR Convention In this respect.

Re Section 72b
Waste that may contain radioactive substances

Waste that may contain radioactive substances shall be measured on the facilities using, for example, the Puck method or another method of similar reliability.

As a general rule, a sample must be taken from each barrel of waste. Mixed samples can be taken of radioactive waste coming from the same physical object. If mixed samples are taken, a subsample must be taken from each of the barrels that the mixed sample represents. The subsamples from the individual barrels shall be of the same size and of at least 100 ml. The subsamples from the barrels must be taken as soon as the individual barrels are filled up.

Samples shall be analysed using gamma spectroscopy or another method of similar accuracy. The mixed samples shall be homogenized before analysis. If it is appropriate to send only part of a mixed sample for analysis, homogenisation of the mixed sample must take place in accordance with the requirements or guidance of the analytical laboratory. The result for the mixed sample analysis is assigned to the radioactive waste in all the barrels represented by the mixed sample.

Under certain conditions, mixed samples can be used for waste from:

a) Cleaning of pipes from the same pipe string

b) Emptying of one separator

c) Emptying of a tank on board, such as a degassing tank and flotation tank

d) Emptying of a desanding cyclone, mud cell and other equipment on board where sand and sludge can be separated

e) Jetting operations

Prerequisites for the use of mixed samples:

a) Mixed samples may only be used when it is reasonable to consider the waste to be homogeneous

b) Waste from different types of equipment shall not be mixed

c) When well streams from several fields are processed on a facility, and the well streams from the different fields enter different separators, the waste from these fields shall not be mixed either

d) A mixed sample may only include waste coming from the same transport container (ship) and the number of barrels included in a mixed sample shall not exceed 25.

CHAPTER XIII
Emergency preparedness

Re Section 73
Establishment of emergency preparedness

To fulfil the requirement relating to the strategy as mentioned in the first subsection, the standard ISO 15544 should be used for health and safety-related emergency preparedness.

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

In order to fulfil the requirement relating to establishing emergency preparedness as mentioned in the first subsection, the NORSOK U-100N standard, Chapters 5.1.5 and 9, should be used for manned underwater operations.

The emergency preparedness shall be coordinated, cf. Section 20 of the Framework Regulations, and the operator shall cooperate with other operators, cf. Section 21 of the Framework Regulations.

The results of the environmental risk and emergency preparedness analysis and the description of planned emergency preparedness, as mentioned in the first subsection, should be submitted as part of the application for permit pursuant to the Pollution Control Act (in Norwegian only).

Re Section 74
Shared use of emergency preparedness resources

Contractual cooperation as mentioned in the first subsection, means, for example, entering into agreements relating to common emergency preparedness plans or agreements to use the emergency preparedness resources of others to ensure optimal emergency response in major acute incidents within an area or region. The availability of public resources in acute pollution situations will depend on no other prioritised activities being underway. Necessary evaluations of sensitivity and uncertainty with respect to availability of such resources shall be performed.

Re Section 75
Emergency preparedness organisation

Emergency preparedness organisation as mentioned in the first subsection, means the personnel, including a physician, directly associated with unit resources, area resources, external resources and regional resources.

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

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

Necessary functions as mentioned in the second subsection, means, inter alia, operational leadership, operation, detection and mapping of acute pollution, environment, economy, logistics and information.

The first aid team on normally manned fixed and mobile facilities should be dimensioned in accordance with the dimensioning incident on the facility. This means that there should be two first responders per severely injured person and that extra resources can assist the first aid team if needed. The operator can use the available emergency preparedness resources as a basis for dimensioning.

Re Section 76
Emergency preparedness plans

The emergency preparedness plans should include

a) a description of purpose, scope and responsibility,

b) a description of organisation, notification, mobilisation and communication,

c) action plans,

d) a description of fields and facility(-ies) and prioritised vulnerable environmental values in the impact area for acute pollution,

e) a description of unit resources, area resources, regional resources and external resources and equipment,

f) instructions for emergency preparedness personnel,

g) any coordination procedures vis-à-vis other involved parties, cf. Section 74, second and third subsections,

h) any cooperation procedures and agreements, cf. Section 78.

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

a) emergency preparedness strategy, emergency preparedness measures and decision criteria for the emergency preparedness phases,

b) in order to handle acute pollution, the emergency preparedness strategy should comprise objectives for protection of prioritised vulnerable environmental values. The description of emergency preparedness measures and decision criteria for the various emergency preparedness phases should include response times for relevant emergency preparedness measures, detection and mapping, choice of emergency preparedness measures based on minimum environmental harm considerations, shore clean-up and environmental surveys in case of acute pollution,

c) for the health-related emergency preparedness, 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) psychological reactions,

    e) communicable diseases,

    f) poisoning.

To fulfil the requirement relating to emergency preparedness plans, the NORSOK U-100N standard, Chapter 9.1, should be used for manned underwater operations.

With regard to Chapter 19 of the Pollution Control Regulations (in Norwegian only), certain supporting documents have been prepared as an aid to enterprises wishing to include dispersion as a method of emergency preparedness. They consist of “Control form for use of dispersants” and “Decision form for use of dispersants with guidelines”. Further information can be found on the websites of the Norwegian Environment Agency (www.miljodirektoratet.no) and the Norwegian Coastal Administration (www.kystverket.no).

Re Section 77
Handling of hazard and accident situations

Giving the **right notification** as mentioned in litera a, means notifying, inter alia,

a) the facility's central control room or other central function,

b) the Joint Rescue Coordination Centre

c) one or more parts of the operator's emergency preparedness organisation,

d) the 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 transport systems.

The scope of the notification will depend on the situation at hand. The Joint Rescue Coordination Centre as mentioned in litera b of these guidelines, handles further notification of bodies that have national emergency resources. This includes notification of the Norwegian Coastal Administration, which is responsible for the public emergency preparedness in relation to acute pollution. For information, see also Section 18 of the Facilities Regulations.

To fulfil the requirement for notification of well control incidents, the Offshore Norge Guideline No. 135 should be used.

The requirement relating to **rescue** as mentioned in litera c, entails that the responsible party shall 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 relating to rescue also entails that MOB boat systems have their own crews. For information, see Section 41 of the Facilities Regulations.

The requirement relating to **evacuation** as mentioned in litera d, entails that the evacuation measures shall be of a nature that provides the highest possible likelihood 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 safe and prudent manner. For information, see also Section 44 of the Facilities Regulations.

In order to fulfil the evacuation requirement as mentioned in litera d, the NORSOK U-100N standard, Chapter 9.5, should be used for divers under pressure.

The requirement relating 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 psychological delayed injuries, and that the next of kin 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.

Re Section 78
Collaboration on preparedness against acute pollution

The total emergency preparedness shall be dynamic and suited to the needs in various areas and time periods. It may be necessary, for example, to increase the availability of resources in the Barents Sea in periods of high activity.

Measures as mentioned in the third subsection, can for example be development of a new concept or new solutions, rescheduling of activities or strengthened emergency preparedness.

Re Section 79
Action against acute pollution

When preparing the plan as mentioned in the first subsection, the basis should be the emergency preparedness action plans, cf. Section 76.

As mentioned in Section 30 of the Management Regulations, the plans for action against acute pollution shall be submitted to the Norwegian Coastal Administration.

In the event of action against acute pollution, both mechanical and chemical alternatives shall be considered. Chemical combatting shall be used if this, overall, results in the lowest strain on the environment, cf. the Pollution Regulations (in Norwegian only) Chapter 19.

Documentation as mentioned in the fourth subsection, means a clarification of

a) measures taken,

b) results from mapping, cf. Section 57, and environmental surveys in connection with acute pollution, cf. Section 58,

c) damage or negative consequences to the environment,

d) criteria for concluding measures.

CHAPTER XIV
Communication

Re Section 80
Communication

In order to communicate as mentioned in the first subsection, it should be possible, inter alia, to

a) provide important information to personnel on the facility during operations and in hazard and accident situations,

b) communicate important information between personnel in the control centre, personnel engaged in the operation of process facilities, drilling operations and lifting operations,

c) establish and maintain direct and continuous communication between communication operators, field and platform management, internal and external emergency resources during hazard and accident situations,

d) provide communication in the event of a coordinated action against acute pollution.

The requirement relating to external communication as mentioned in the first subsection, means that manned facilities shall have 24-hour continuous telecommunications services with monitoring service on

VHF channel 70 (DSC) and channel 16. The service can be established on one's own facility or as a part of a joint solution where several facilities are 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 covered by mutual VHF radio communication and be organised under the 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 shall have mutual permanent communication systems.

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

A person responsible for communications as mentioned in the second subsection, means a person who has a particular responsibility to ensure the professional operation of the facility's radio station and use of the other communication systems at all times.

CHAPTER XV
Drilling and well activities

Re Section 81
Well programme

For information, see Section 10 of the Facilities Regulations.

In order to fulfil the requirement relating to the programme as mentioned in the first subsection, the NORSOK D-010 standard, Chapters 5.3, 5.7, 5.11 and 10.3 should be used in the area of health, working environment and safety. Regarding principles for reduction in uncertainty related to pore pressure, IOGP Report 608 should be used.

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 their frequency,

d) an evaluation of well integrity seen in the context of the design life for the barriers, cf. also Section 88.

The updating as mentioned in the second subsection, 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 82
Well location and wellbore

In order to fulfil the requirement relating to well location and wellbore as mentioned in the first subsection, the NORSOK D-010 standard, Chapters 5.3 and 6.7.4 should be used, with the following

addition: the well's location and wellbore should be stated in Universal Transverse of Mercator (UTM) coordinates.

Re Section 83
Shallow gas and shallow formation fluids

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

In order to fulfil the requirement, the NORSOK D-010 standard, Chapter 6.7.2 should be used in the area of health, working environment and safety, cf. Section 17 of the Management Regulations

Re Section 84
Monitoring well parameters

The requirement relating to collection implies, inter alia, that data that could indicate a possible well control incident, are monitored, recorded and processed.

In order to fulfil the requirement relating to collection, the NORSOK D-010 standard, Chapters 5.7, 6.7.3 and 6.7.4 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 85
Well barriers

In order to fulfil the requirement relating to the barrier as mentioned in the first subsection, the NORSOK D-010 standard, Chapters 5.2, 5.3, 5.4, 6.1, 6.2, 6.3, 9 and Annex C should be used in the area of health, working environment and safety, cf. Section 5 of the Management Regulations. For information, see also Section 48 of the Facilities Regulations.

Where a homogeneous liquid column constitutes the primary barrier, the barrier requirement as mentioned in the first subsection, entails that there is sufficient drilling fluid material and drilling fluid available to maintain the barrier, cf. also Section 51 of the Facilities Regulations.

Where requirements are concerned for restoring barriers as mentioned in paragraph 2, cf. Section 5 of the Management Regulations.

Pumping and fluid capacity, as mentioned in the third subsection, means preparedness for handling a failure in one or more well barriers, cf. Section 86 on well control. By heavy well intervention, as mentioned in the third subsection, is meant coiled tubing and snubbing operations. By light well intervention, as mentioned in the third subsection, is meant cable and pumping operations. In order to fulfil the requirement in the third subsection, NORSOK D-010 standard, Chapters 5.2.8 and 11.4 should be used.

The handover as mentioned in the third subsection, includes 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 for handover of wells as mentioned in the fourth subsection, the NORSOK D-010 standard, Chapters 5.10, 9.2, 9.3, 9.5, 9.6 and 9.7 and Offshore Norge Guideline no. 117 should be used for drilling and well activities.

Re Section 86
Well control

Well control incident as mentioned in the first subsection, means the failure of one or more well barriers where the failure results in unintended flow of formation fluid into the well, cross flow in the well or outflow to the external environment.

Intervening directly in or on the well as mentioned in the first subsection, means re-establishment of barriers by using established well control methods or by using capping equipment.

In the event of using established well control methods, the NORSOK D-010 standard, Chapter 5.2.8 should be used.

In the event of using capping equipment for subsea wells, the NORSOK D-010 standard, Chapter 5.8.3 should be used. When planning possible capping operations, if applicable, IOGP Report 594 should be used.

In order to regain well control by relief well drilling as mentioned in the first subsection, the NORSOK D-010 standard, Chapter 5.8.2 should be used.

When planning activities as mentioned in the second subsection, the NORSOK D-010 standard, Chapter 5.8 should be used, with the following addition: evaluation of technical and operational feasibility, plus location, operation and well specific risk assessments for the method chosen.

Organisational independence as mentioned in the second subsection, is described in the guidelines to Section 19 of the Framework Regulations.

To fulfil the requirement to plans as mentioned in the fourth subsection, the NORSOK D-010 standard, Chapters 5.8 should be used, with the following additions:

a) the plans should describe the need for and availability of facility(ies) and services,

b) plans for relief well drilling and capping operations that require modifications of facility(ies), use of additional equipment, vessels or new technology, should detail how this can be mobilised and operative prior to start-up of the operation that requires this.

Re Section 87
Controlled well stream

Controlled well stream means formation testing, test production, clean-up and stimulation of the well. Discharges from formation testing and clean-up of wells are regulated in Section 69.

In order to fulfil the requirement to operational limitations in the area of health, working environment and safety, the NORSOK D-010 standard, Chapters 7, 8, 9 and 15, plus tables C.27, C.32, C.34, C.35, C.36, C.45 and C.46 should be used. Cf. also Section 53 of the Facilities Regulations.

Re Section 88
Securing wells

To fulfil the requirement relating to securing as mentioned in the first subsection, the NORSOK D-010 standard, Chapter 10 should be used in the area of health, working environment and safety. For information, see also Section 48 of the Facilities Regulations.

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

In order to control the well integrity as mentioned in the third subsection, 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 subsea-completed wells, it should be possible to monitor the pressure in the production tubing and in the production annulus.

If it is necessary to abandon the radioactive source in the well, as mentioned in the fourth subsection, the NORSOK D-010 standard, Chapter 10 and table C.24 should be used, with the following additions:

a) an internal overview of abandoned sources should be established and maintained. The overview should contain details about every single source and its position,

b) radioactive sources abandoned 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.

Section 14 second subsection of the Radiation Protection Regulations (in Norwegian only) also requires that information on abandoned sources shall be given to the Norwegian Radiation and Nuclear Safety Authority.

Re Section 89
Remote operation of pipes and work strings

In order to fulfil the requirement for remote-operated pipe handling, Norwegian Oil and Gas' guideline No. 081 should be used. For information, see also Section 69 of the Facilities Regulations.

The requirement regarding limitations as mentioned in the second subsection, implies, inter alia, that the work area for the remote-operated systems shall be determined.

Personnel as mentioned in the third subsection, 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 corresponding contact and communication among themselves.

CHAPTER XVI
Maritime operations

Re Section 90
Positioning

In order to fulfil the requirement relating to marine operations as mentioned in the first subsection, 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.

For calculation of anchoring systems, see also Section 25.

Table 1 Equipment Class

For a description of the equipment classes in this table, see IMO/MSC Circular 1580, Chapter 2, Equipment Classes.

ACTIVITY	

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

**Class 1 if the distance between associated facility(-ies) and tank vessel is 2.5 km or more, Class 2 if not.*

Notes to the table

1) For dynamic positioning, consideration should be given to the reference systems' limitations as regards reliability, availability 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 relating 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 relating 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, include well intervention, such as wireline operations. Other well activities as mentioned in this table litera l, 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 for 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 subsection, floating production, storage and offloading facilities (FPSOs) and floating storage units (FSUs) that offload to tank vessels, should be equipped with directional control. For information, see also Section 63 of the Facilities Regulations.

Floating 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 31.

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. Section 33 of the Facilities Regulations.

Operation of positioning and anchoring systems should be in accordance with Sections 15-17 of the Norwegian Maritime Authority's Regulations relating to positioning and anchoring systems on mobile facilities (in Norwegian only).

Dynamic positioning operations should comply with IMO MSC.1 / Circ.1580 "Guidelines for Vessels and Units with Dynamic Positioning (DP) Systems", Chapter 4.

For vessels anchored within the safety zone which are larger than the facility has been designed to withstand collision with, the anchoring should fulfil Sections 6 through 17 of the Norwegian Maritime Authority’s Regulations relating to positioning and anchoring systems on mobile facilities (in Norwegian only) (the Anchoring Regulations 09), and should conform with Section 16 of the Norwegian Maritime Authority’s Regulations for mobile facilities with technical production installations and equipment (in Norwegian only) if they lie adjacent to the facility.

CHAPTER XVII
Electrical installations

Re Section 91
Work on and operation of electrical installations

In order to fulfil the requirements relating to work as mentioned in the first subsection,

a) Chapter I Section 5, Chapter II Sections 6, 7 and 9 and Chapters III, IV and B of the Regulations relating to operational safety of electrical installations (in Norwegian only),

b) NEK EN 50110-1 Safety when working on and operating electrical installations (in Norwegian only)

c) Regulations relating to handling of medical equipment (in Norwegian only), Section 1 up to and including Section 5 and Section 7 up to and including Section 12,
should be used, as well as

d) IMCA D 045, R 015 Code of practice for the safe use of electricity under water, which should be used for manned underwater operations.

Being the designated responsible person as mentioned in the second subsection, entails having a particular professional responsibility for ensuring that electrical installations comply with applicable regulations at all times, and for keeping up-to-date on electrical installations and equipment under planning, construction and commissioning, etc. As regards qualifications for the person with responsibility for the electrical installations, see Section 21.

CHAPTER XVIII
LIFTING OPERATIONS

Re Section 92
Lifting operations

In order to fulfil the requirement relating to lifting operations, the NORSOK R-003 standard should be used. Cf. also Section 69 of the Facilities Regulations, Section 25 of these regulations and the Regulations concerning the performance of work, Chapter 18. For information, see also Section 18 of the Facilities Regulations.

The role of operationally responsible entity for materials handling and lifting operations should contribute necessary information for risk assessment before, during and after lifting operations.

CHAPTER XIX
Manned underwater operations

Re Section 93
Manned underwater operations

The NORSOK U-100N standard should be used during manned underwater operations.

Re Section 94
Time limit provisions

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 when the clamp between the bell and the chamber is first loosened and stops when the clamp is reconnected, ready for pressure equalisation and final transfer of the divers back to the chamber complex.

For work in subsea chambers down to 180 metres requiring time in water which does not exceed more than a total of four hours during a twelve-hour period, as described in litera d, a “dry day” as back-up diver in the bell at least each third day as mentioned in litera d, number 2, is not required. If the diver’s time in water exceeds four hours, litera d with subsections applies.

For work in subsea chambers deeper than 180 metres, as described in litera e, and which requires time in water, the diver shall not conduct any work in water or stay in the water longer than the time it takes to move between the bell and the subsea chamber. A “dry day” as back-up diver in the bell at least each third day as mentioned in litera e, is not required. The bell run as described in litera c, may under such circumstances be extended to eight hours.

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. For activity reporting, the break in the bell counts as part of “number of manhours in water”.

CHAPTER XX
Concluding provisions

Re Section 95
Supervision, decisions, enforcement, etc.

No comments.

Re Section 96
Entry into force

See Section 73 of the Framework Regulations, too.

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Regulations of 6 December 2011 No. 1357 concerning the performance of work, use of work equipment and related technical requirements,

Regulations of 6 December 2011 No. 1359 concerning the construction, design and production of work equipment and chemicals,

The Ministry of Labour and Social Inclusion, The Ministry of Justice and Public Security, The Ministry of Climate and Environment

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2. Standards and guidelines

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