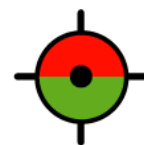


**REGULATIONS RELATING TO  
SAFETY AND WORKING ENVIRONMENT FOR TRANSPORT AND  
INJECTION OF CO<sub>2</sub> ON THE CONTINENTAL SHELF  
(CO<sub>2</sub> SAFETY REGULATIONS)**

**(Last amended 25 February 2020)**



**PETROLEUM SAFETY AUTHORITY  
NORWAY**

**Regulations relating to safety and working environment for transport and injection of CO<sub>2</sub> on the continental shelf (the CO<sub>2</sub> safety regulations)**

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**Regulations relating to safety and working environment for transport and injection of CO<sub>2</sub> on the continental shelf (the CO<sub>2</sub> safety regulations)**

**Stipulated by the Petroleum Safety Authority Norway 25 February 2020 in pursuance of Act 21 June 1963 No. 12 relating to scientific research and exploration for and exploitation of subsea natural resources other than petroleum resources Sections 1 and 3, Act 17 June 2005 No. 62 relating to working environment, working hours and employment protection, etc. Sections 1-3, 1-4, 2-2, 3-1, 3-2, 3-3, 3-5, 4-1, 4-2, 4-3, 4-4, 4-5, 4-6, 5-2, 5-4, 5-5, 6-1, 6-2, 6-4, 7-1, 7-2, 7-3, 18-1, 18-5 and Regulations 5 December 2014 No. 1517 relating to exploitation of subsea reservoirs on the continental shelf for storage of CO<sub>2</sub> and relating to transportation of CO<sub>2</sub> on the continental shelf Section 11-23 first subsection.**

**CHAPTER I  
INTRODUCTORY PROVISIONS**

**Section 1  
Purpose**

The purpose of these regulations is to

- a. promote a high level of safety and working environment in activities covered by these regulations
- b. achieve systematic implementation of measures to comply with the requirements and achieve the goals stipulated in the safety legislation
- c. further develop and improve the level of safety and working environment.

**Section 2  
Scope**

The regulations apply to exploration for and exploitation of subsea reservoirs for storage of CO<sub>2</sub> and transport of CO<sub>2</sub> to such reservoirs in areas subject to Norwegian jurisdiction. The regulations also apply to transport of CO<sub>2</sub> and exploitation of subsea reservoirs for the storage of CO<sub>2</sub> in and outside the realm and the Norwegian continental shelf when it follows from international law or by agreement with a foreign state.

The regulations apply to equipment and systems for injection. This includes equipment and systems required for pipeline operation and maintenance, as well as equipment and systems for monitoring injection wells and emergency and safety systems associated with pipelines and injection wells, limited to the outlet of the CO<sub>2</sub> well injection pipes.

Scientific research and exploration for subsea reservoirs for storage of CO<sub>2</sub>, and exploitation, transport and storage of CO<sub>2</sub> in such reservoirs on the Norwegian continental shelf as part of the petroleum activities, are regulated by the Petroleum Act (Act of November 29, 1996, No. 72) with associated regulations.

The regulations do not apply to Svalbard.

**Section 3  
Relation to other legislation**

The regulations are based on the principles that are used in the HSE regulations for the petroleum activities, adapted to the risk conditions that transport and injection of CO<sub>2</sub> represent. The regulations are limited to safety and working environment. The terms "apply correspondingly" and "apply as far as is appropriate" as used in these regulations, shall be understood in light of the aforementioned limitations.

**Section 4  
Definitions**

In these regulations, the following is meant by

- a. the Activities Regulations,**  
*Regulations 29 April 2010 No. 613 relating to conduct of petroleum activities, with amendments*
- b. the responsible party,**  
the operator and others participating in activities covered by these regulations, without being a licensee or owner of an onshore facility
- c. injection,**  
injection of CO<sub>2</sub> in subsea reservoirs, including drilling of injection wells, injection, as well as construction, placement, operation and use of a facility for injection
- d. facility,**  
installations, plants and other equipment for exploitation of subsea reservoirs for storage of CO<sub>2</sub>, but excluding supply and utility vessels or vessels that transport CO<sub>2</sub> in bulk. Facility also includes pipelines and cables unless otherwise determined
- e. the Facilities Regulations,**  
*Regulations 29 April 2010 No. 634 relating to relating to design and outfitting of facilities, etc. in the petroleum activities, with amendments*
- f. operator,**  
the legal (private or public) person that on behalf of the licensee handles the day-to-day management of transport and exploitation of subsea reservoirs for storage of CO<sub>2</sub>
- g. the Framework Regulations,**  
*Regulations 12 February 2010 No. 158 relating to health, safety and the environment in the petroleum activities and at certain onshore facilities, with amendments*
- h. licensee,**  
body corporate, or multiple such persons, which according to Regulations relating to storage and transport of CO<sub>2</sub> on the shelf holds a licence for surveying, exploration or exploitation of subsea reservoirs for storage of CO<sub>2</sub>, or for installation and operation of facilities for transport of CO<sub>2</sub>. If a licence is granted to multiple such persons jointly, the term licensee may include both the licensees together and the individual participant,
- i. safety legislation,**  
the national laws and Regulations relating to storage and transport of CO<sub>2</sub> on the shelf and decisions taken pursuant to these within the scope, cf. Section 2
- j. the Management Regulations,**  
*Regulations 29 April 2010 No. 611 relating to management and the duty to provide information in the petroleum activities and at certain onshore facilities, with amendments*
- k. exploitation,**  
all activities linked to storage and monitoring of CO<sub>2</sub> in subsea reservoirs, including development, injection of CO<sub>2</sub>, seismic data acquisition for monitoring, cessation and permanent storage of CO<sub>2</sub>, as well as planning of such activities, but excluding transport of CO<sub>2</sub> in bulk in vessels
- l. Technical and Operational Regulations,**  
*Regulations 29 April 2010 No. 612 relating to technical and operational matters at onshore facilities in the petroleum activities, etc., with amendments*
- m. transport,**  
shipment of CO<sub>2</sub> via pipeline as well as construction of a pipeline, placement, operation and use of a facility for transport

## **Section 5**

### **Responsibilities pursuant to these regulations**

The operator and others participating in the activities, are responsible pursuant to these regulations. The responsible party shall ensure compliance with requirements stipulated in the safety legislation.

The operator shall see to it that everyone who carries out work on its behalf, either personally, through employees, contractors or subcontractors, complies with requirements stipulated in the safety legislation.

In addition to the duties imposed on licensees by individual provisions in these regulations, they are responsible for seeing to it that the operator complies with the requirements stipulated in the safety legislation.

According to Section 2-3 of the Working Environment Act, the employees have a duty to contribute.

## **CHAPTER II**

### **BASIC REQUIREMENTS FOR SAFETY AND WORKING ENVIRONMENT AND FOR MANAGEMENT OF THE ACTIVITIES**

## **Section 6**

### **Principles for safety**

The provisions that apply to safety and the working environment in Chapter II of the Framework Regulations, apply correspondingly to the scope of these regulations.

## **Section 7**

### **Management of the activities**

The provisions that apply to safety and working environment in Chapter III of the Framework Regulations and Chapters II through VI of the Management Regulations, apply correspondingly to the scope of these regulations.

## **CHAPTER III**

### **MATERIAL AND INFORMATION**

## **Section 8**

### **Documentation, etc.**

The Framework Regulations Section 23 on general requirements for material and information, 24 on use of recognized standards and 26 on documentation in the early phase, and the Management Regulations Section 24 on organization of material and information apply correspondingly to the scope of these regulations.

## **Section 9**

### **Notification and reporting**

The requirements for notification and reporting that apply to safety and working environment in Chapter VIII of the Management Regulations, apply correspondingly to the scope of these regulations.

## **Section 10**

### **Reporting and information**

Requirements for reporting and information in Chapter IX of the Management Regulations with the exception of Section 34 apply correspondingly to the scope of these regulations.

## **Section 11**

### **Matters relating to safety and working environment in the plan for development and operation**

## **of a subsea reservoir for injection and storage of CO<sub>2</sub> and specific licence for the installation and operation of facilities for transport**

In addition to the account required by Sections 4-6 and 6-2 of the Regulations relating to storage and transport of CO<sub>2</sub> on the shelf, the plan for the development and operation of subsea reservoirs for the injection and storage of CO<sub>2</sub> and specific licence for installation and operation of facilities for transport include an account of matters that are important for safety and the working environment as mentioned in Section 27 of the Framework Regulations.

The consequences for the well barriers of existing wells in the CO<sub>2</sub> storage complex shall be accounted for.

### **Section 12**

#### **Consent to certain activities**

The operator must submit an application for consent to the Petroleum Safety Authority Norway in sufficient time before the planned start. The application for consent may cover several activities that are naturally related.

The Petroleum Safety Authority may decide by individual decision that the operator must obtain consent from the Petroleum Safety Authority before certain activities are initiated, including provisions on the documentation that must accompany the application for consent. The Petroleum Safety Authority may, by an individual decision, limit the consent to certain steps or phases.

If the conditions for the consents given pursuant to this section are substantially changed, the Petroleum Safety Authority may require the operator to obtain a new consent before the activities are continued.

The operator must have consent

- a. before facilities or parts of these are put into service
- b. before carrying out major modifications or changes in use unless these are covered in an approved plan for development and operation and specific licence for installation and operation
- c. before significant changes in activities as a result of new requirements or licences from other authorities
- d. before conducting exploration drilling.

The application for consent shall, as far as is appropriate, contain information as mentioned in Section 26 of the Management Regulations and information as mentioned in Section 5-2 of the Regulations relating to storage and transport of CO<sub>2</sub> on the shelf.

The Petroleum Safety Authority may impose other requirements for documentation.

### **Section 13**

#### **Cessation plan**

In addition to information and assessments required by Section 7-1 of the Regulations relating to storage and transport of CO<sub>2</sub> on the shelf, the cessation plan shall, as far as is appropriate, include a description of matters as mentioned in Section 30 of the Framework Regulations.

## **CHAPTER IV**

### **DESIGN AND OUTFITTING OF FACILITIES AND CONDUCT OF ACTIVITIES**

#### **Section 14**

##### **Design and use of facilities**

The Framework Regulations Section 45 on development concepts, 47 on placement of facilities, choice of routes and 49 on use of facilities apply correspondingly to the scope of these regulations.

Facilities shall be based on robust and simplest possible solutions and designed so that

- a. the possibility for human error is limited
- b. they or it can be operated, tested and maintained without danger to the personnel and with the lowest possible risk of pollution
- c. they or it is suitable for use and capable of withstanding the loads they or it can be exposed to during operation.

Use of facilities and parts of these shall be in accordance with requirements stipulated in and in pursuance of the safety legislation and any additional restrictions that follow from fabrication, installation and commissioning. At all times, the use shall be in accordance with the facility's technical condition and the assumptions for use that form the basis for prudent activities.

When setting restrictions for the activity level on the facility, the maintenance status shall also be considered.

## **Section 15**

### **Safety functions and safety systems**

Facilities shall be equipped with the necessary safety functions which at all times can

- a. detect abnormal conditions
- b. prevent abnormal conditions from developing into hazard and accident situations
- c. mitigate the damage caused by accidents.

Requirements for the performance of security functions shall be established.

The status of active safety features shall be available in the control room.

The measures and limitations necessary to maintain the barrier function of safety systems in the event of bridging, disconnection or other impairment, shall be determined in advance. The compensatory measures shall be implemented as soon as possible when such impairment occurs.

The status of safety systems shall be known to relevant personnel at all times.

## **Section 16**

### **Pipeline systems**

The pipeline systems shall be designed so that internal maintenance and inspection can be carried out.

Locks for sending and receiving cleaning and inspection tools shall be designed so that they cannot be opened under pressure.

On pipeline systems where failure modes may pose an environmental or safety risk, inspections shall be performed to follow up any failure modes that may affect the integrity of the pipeline system. The maintenance programme shall define the initial inspection, and the time shall be based on the risk assessments carried out.

## **Section 17**

### **Drilling and well systems and drilling and well activities**

The requirements that apply to drilling and well systems in Chapter VIII of the Facilities Regulations and to drilling and well activities in Chapter XV of the Activities Regulations, apply correspondingly to the scope of these regulations.

## **Section 18**

### **Mobile facilities**

Mobile facilities and their use shall be in accordance with Section 25 of the Framework Regulations, Chapter II, V, VI, VII and VIII of the Activities Regulations and relevant technical requirements in the Facilities Regulations.

For mobile facilities that are registered in a national ship register and that follow a maritime operating concept, the Framework Regulations Section 3, cf. the Facilities Regulations Section 1, fourth subsection, applies correspondingly.

## **Section 19**

### **Manned underwater operations and diving operations**

The requirements for equipment and conduct of manned underwater operations in Section 4 first subsection of the Framework Regulations, Section 1 second subsection, Section 41a and Chapter XIII of the Facilities Regulations, Section 21 second subsection and Chapter XIX of the Activities Regulations, and diving operations in Section 63 of the Technical and Operational Regulations apply correspondingly to the scope of these regulations.

## **Section 20**

### **Emergency preparedness at sea**

The Activities Regulations Section 77 on handling hazard and accident situations applies as far as is appropriate to the scope of these regulations.

## **CHAPTER V CLOSING PROVISIONS**

## **Section 21**

### **Supervisory authority, etc.**

The Petroleum Safety Authority Norway will carry out supervision to ensure compliance with the requirements stipulated in the safety legislation.

The Petroleum Safety Authority makes the individual decisions that are necessary to implement the provisions given in these regulations. Individual decisions made by the Petroleum Safety Authority pursuant to these regulations, may be appealed to the Ministry of Labour and Social Affairs.

The Petroleum Safety Authority may make exceptions to the provisions of these regulations when special circumstances exist. If the exception can have an impact on safety and the working environment, a statement from the employees' union representatives shall be attached to the application for exception.

## **Section 22**

### **Means of reaction and penalties**

Provisions on penalties and other means of reaction set forth in Sections 18-7, 18-8, 18-10 and Chapter 19 of the Working Environment Act, Section 4 of the Act relating to Other Subsea Natural Resources and Section 11-24 of the Regulations relating to storage and transport of CO<sub>2</sub> on the shelf, apply in the event of a breach of any requirements made in and pursuant to these regulations.

## **Section 23**

### **Entry into force**

These regulations come into force on 26 February 2020.