

2010 No. 0000

ENVIRONMENTAL PROTECTION

The Storage of Carbon Dioxide (Licensing) Regulations 2010

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| <i>Made</i> | - - - - | 2010 |
| <i>Laid before Parliament</i> | | 2010 |
| <i>Coming into force</i> | - - | [6th April] 2010 |

The Secretary of State is designated(a) for the purposes of section 2(2) of the European Communities Act 1972(b) in relation to the environment.

The Secretary of State in exercise of the powers conferred by section 2(2) of that Act, and by sections 19, 21, 29(1) and 104(2) of the Energy Act 2008(c), makes the following Regulations:

General

Citation, commencement and interpretation

1.—(1) These Regulations may be cited as the Storage of Carbon Dioxide (Licensing) Regulations 2010, and come into force on [6th April] 2010.

(2) In these Regulations—

“appraisal term” has the meaning given by regulation 3(1);

“the authority” means the Secretary of State;

“close”, in relation to a site, means the taking of such steps as are necessary to ensure closure of the site;

“CO₂” means carbon dioxide;

“corrective measures plan” is the plan approved for the purposes of the provisions in paragraph 5 of the Schedule;

“Crown lease” has the meaning given by section 18(4);

“the Directive” means Directive 2009/31/EC of the European Parliament and of the Council of 23 April 2009 on the geological storage of carbon dioxide and amending Council Directive 85/337/EEC, Directives 2000/60/EC, 2001/80/EC, 2004/35/EC, 2006/12/EC, 2008/1/EC and Regulation (EC) No 1013/2006(d);

(a) S.I. 2008/301.

(b) 1972 c. 68; section 2(2) was amended by section 27(1)(a) of the Legislative and Regulatory Reform Act 2006 (c. 51).

(c) 2008 c. 32; sections *** were amended by SI/***. See the definition of “prescribed” in section 29(7).

(d) OJ No L 140, 5.6.2009, p 114.

“the ETS Directive” means Directive 2003/87/EC of the European Parliament and of the Council of 13 October 2003 establishing a scheme for greenhouse gas emission allowance trading within the Community and amending Council Directive 96/61/EC(a);

“European Economic Area” means the territories of the EEA states, including their exclusive economic zones and continental shelves as defined in Articles 55 and 76 of the United Nations Convention on the Law of the Sea(b);

“financial security” includes—

- (a) a charge over a bank account or any other asset;
- (b) a deposit of money;
- (c) a performance bond or guarantee;
- (d) an insurance policy;
- (e) a letter of credit;

“licence” means a licence granted by the authority under section 18;

“licensed area” means the area within which the licence holder has rights under the licence;

“monitoring plan” is the plan that is for the time being approved for the purposes of the provisions in paragraph 2 of the Schedule;

“operator”, in relation to a storage permit, means the person who is responsible for organising or supervising activities at the storage site;

“post-closure plan” has the meaning given by regulation 13(6);

“provisional post-closure plan” has the meaning given by regulation 13(2);

“storage permit” means a consent granted under a licence, authorising the use of a place as a storage site;

“technical competence” includes expertise in the operation of environmental management systems.

(3) In these Regulations—

- (a) any reference to a numbered section is to that section of the Energy Act 2008; and
- (b) expressions mentioned in paragraph (4) have the meanings given by Article 3 of the Directive (and cognate expressions are to be construed accordingly).

(4) The expressions are—

“closure”;

“corrective measures”;

“CO₂ plume”;

“CO₂ stream”;

“exploration”;

“hydraulic unit”;

“leakage”;

“significant irregularity”;

“significant risk”;

“storage complex”;

“storage site”;

“substantial change”;

(a) OJ No L 275, 25.10.2003, p 32, amended by Directive 2004/101/EC of 27 October 2004, OJ No L 338, 13.11.2004, p 18; by Directive 2008/101/EC of 19 November 2008, OJ No L 8, 13.1.2009, p 3; and by Directive 2009/29/EC of 23 April 2009, OJ No L 140, 5.6.2009, p 63.

(b) Cm. 4524.

“water column”.

Licences

Limitations on licensing powers

2.—(1) A licence may not be granted in respect of a storage complex, any part of which would be outside the European Economic Area.

(2) A licence may not be granted for the purpose of storing carbon dioxide in the water column.

Applications for a licence

3.—(1) An application for a licence may include a request that the licence specify an initial period (“the appraisal term”) during which the licence holder has the right to explore the licensed area.

(2) The application must be—

- (a) made in writing and sent to the Department of Energy and Climate Change, and
- (b) accompanied by a fee of £ 2,100.

Appraisal or initial term

4.—(1) The appraisal term may not exceed the period necessary to—

- (a) generate the information necessary to select a storage site, and
- (b) prepare the documents required for an application under regulation 5.

(2) Subject to paragraph (1), the appraisal term may be extended at the written request of the licence holder, under the conditions laid down in the licence, provided that the authority is satisfied that any exploration so far carried out has been in accordance with the licence.

(3) If the licence does not include an appraisal term—

- (a) the licence must specify a period for the purpose of paragraph (4) (“the initial term”); but
- (b) the initial term may be extended under the conditions laid down in the licence.

(4) The licence expires (unless sooner terminated in accordance with its provisions)—

- (a) at the end of the appraisal term or the initial term, if no application for a storage permit is made before the that date; or
- (b) if such an application is refused, when that refusal is notified to the licence holder.

Storage permits

Applications for a storage permit

5.—(1) The licence holder may, under the conditions laid down by the licence, apply to the authority for a storage permit in respect of a place within the licensed area.

(2) Where the licence includes an appraisal term, the application may not be made unless any necessary exploration has been completed, and all the terms and conditions of the licence have been complied with.

(3) An application must contain at least the following—

- (a) the name and address of the proposed operator;
- (b) proof of the technical competence and financial standing of that operator;
- (c) evidence of the matters referred to in regulation 6(1)(a) and (b);
- (d) in relation to the CO₂ that is to be contained within the site—
 - (i) the total quantity that is to be injected and stored;

- (ii) a proposed date on which injection is to commence;
- (iii) the prospective sources and transport methods;
- (iv) the composition of the CO₂ streams that are to be injected;
- (v) the proposed injection rates and pressures;
- (vi) the proposed location of the injection facilities;
- (e) a description of measures to be taken to prevent any significant irregularities;
- (f) a proposed monitoring plan;
- (g) a proposed corrective measures plan;
- (h) a proposed provisional post-closure plan (in accordance with regulation 13(1));
- (i) the information provided pursuant to Article 5 of Council Directive 85/337/EEC^(a);
- (j) details of the financial security that will be in effect before the date referred to in subparagraph (d)(ii);
- (k) details of the Crown lease that has or may be granted in relation to the proposed storage site.

Grant of storage permits

- 6.—(1) Before granting a storage permit the authority must be satisfied that—
- (a) the storage complex and surrounding area have been sufficiently characterised and assessed in accordance with the criteria set out in Annex 1 to the Directive;
 - (b) under the proposed conditions of use of the site, there is no significant risk of leakage or of harm to the environment or human health; and
 - (c) the conditions in paragraph (2) are met.
- (2) The conditions are that—
- (a) the proposed operator is technically competent, financially sound, and can be relied upon to carry out the functions of an operator; and
 - (b) an appropriate programme of training and development will be available to that operator's staff.
- (3) Where more than one site is contained within the same hydraulic unit, before granting a storage permit for either site the authority must be satisfied that the requirements imposed by the permits can be met simultaneously.
- (4) If the authority is minded to grant a storage permit—
- (a) a draft of the proposed permit must be forwarded to the European Commission, together with the material taken into consideration in preparing the draft and the reasons on which it is based; and
 - (b) the authority must before granting the permit consider any opinion on the draft that is issued under Article 10(1) of the Directive.

Content of storage permits

- 7.—(1) A storage permit must include at least the following—
- (a) the name and address of a single person who is designated as the operator of the site;
 - (b) the precise location and coordinates of the storage site and storage complex, and information about the hydraulic unit;

(a) Council Directive 85/337/EEC of 27 June 1985 on the assessment of the effects of certain public and private projects on the environment, OJ No L 175, 5.7.1985, p 40; amended by Council Directive 97/11/EC of 3 March 1997, OJ No L 73, 14.03.1997, p 5; Directive 2003/35/EC of 26 May 2003, OJ No L 156, 25.2.2003, p 17; and Directive 2009/31/EC of 23 April 2009, OJ No L 140, 5.6.2009, p 114.

- (c) the operational requirements for storage, including—
 - (i) the total quantity of CO₂ authorised to be stored;
 - (ii) the reservoir pressure limits; and
 - (iii) the maximum injection rates and pressures;
- (d) the specified provisions relating to the acceptance and injection of CO₂;
- (e) any other requirements relating to injection and storage that the authority considers necessary, in particular to prevent significant irregularities;
- (f) requirements designed to prevent any undue interference with other uses of the area surrounding the site;
- (g) the specified provisions relating to monitoring, including the monitoring plan;
- (h) the specified provisions relating to reporting and notification;
- (i) the specified provisions relating to the notification of changes;
- (j) the corrective measures plan, and the specified provisions relating to corrective measures;
- (k) the conditions for closure of the site;
- (l) the provisional post-closure plan;
- (m) the specified provisions relating to financial security.

(2) In this regulation, “specified provision” means a provision contained in the Schedule (or a provision having identical legal effect to such a provision).

Register

Information to be published on the register

8.—(1) The information to be published in accordance with section 29 is the information to which paragraph (2) applies.

(2) This paragraph applies to the following information—

- (a) particulars of each storage permit granted by the authority, or by any other licensing authority within the meaning of section 18;
- (b) particulars of each storage site that has been closed.

(3) The particulars referred to in paragraph (2)(a) are—

- (a) the name and address of the licence holder and of the operator; and
- (b) maps and sections of the spatial extent of the storage site and storage complex.

(4) The particulars referred to in paragraph (2)(b) are—

- (a) the particulars mentioned in paragraph (3); and
- (b) any information relevant for assessing whether the stored CO₂ will be completely and permanently contained.

Powers and duties of the authority

Corrective measures

9.—(1) This regulation applies where—

- (a) a significant irregularity or a leakage has been detected at the storage site; and
- (b) the licence under which the storage permit is granted is still in force.

(2) Without prejudice to the obligations of the operator under the storage permit, or to the powers of the authority under section 24, the authority may direct the operator to take any corrective measures (including measures for the protection of human health) that the authority, after consulting the operator, considers necessary.

(3) Whether or not a direction has been given under paragraph (2) or under section 24, the authority may at any time take such action itself (or arrange for another person to take such action on the authority's behalf).

(4) Section 24(5) to (8) applies to action taken under paragraph (3) as it applies to action taken under section 24(4).

Review, modification and revocation of storage permit

10.—(1) Where a notification is made in accordance with the provisions referred to in regulation 7(1)(i), the authority may make such modifications to the storage permit as the authority considers appropriate.

(2) Where the matters so notified amount to a substantial change, the authority must make such modifications.

(3) This paragraph applies where the authority becomes aware of—

- (a) any (or any risk of) leakages or significant irregularities;
- (b) any breach of the terms or conditions of the storage permit;
- (c) any scientific finding or technological development having a bearing on the conduct of operations at the site.

(4) The authority must consider whether to modify or revoke the storage permit—

- (a) where paragraph (3) applies; and
- (b) in any event, on the date (“the review date”) falling on the fifth anniversary of the grant of the storage permit, and subsequently on every tenth anniversary of the review date.

(5) Following that consideration, the authority may—

- (a) make such modifications to the storage permit as the authority considers appropriate; or
- (b) if it decides that modification of the permit would be insufficient in the light of the matters referred to in paragraph (3), revoke the permit.

Consequences of revocation of storage permit

11.—(1) This regulation applies where the authority has revoked the storage permit under regulation 10(5).

(2) The authority must then either—

- (a) consider any application for a licence in respect of the area containing the storage complex, and (if such a licence is granted) for a storage permit in respect of the storage site; or
- (b) close the storage site.

(3) Until the site is closed under paragraph (2)(b), or the storage permit is granted, the authority is to be deemed to be the operator of the site for the purposes of the following obligations—

- (a) in relation to the acceptance and injection of CO₂;
- (b) in relation to monitoring;
- (c) in relation to corrective measures;
- (d) in relation to the surrender of allowances under the ETS Directive; and
- (e) under Articles 5(1) and 6(1) of Directive 2004/35/EC of the European Parliament and of the Council of 21 April 2004 on environmental liability with regard to the prevention and remedying of environmental damage^(a).

(4) Where the site is closed under paragraph (2)(b), the authority is deemed to be the operator of the site for the purposes of the obligations referred to in paragraph (3)(b) to (e).

(a) OJ No L 143, 30.4.2004, p 56; amended by Directive 2006/21/EC, OJ No L102, 11.4.2006, p 15.

(5) The authority must recover from the operator any costs incurred in meeting the obligations referred to in paragraph (3); and section 24(6) and (7) applies to the recovery of such costs as it applies to the recovery of costs under section 24(5).

Closure of storage site and post-closure period

Closure of a storage site

12.—(1) A storage site is to be closed where the conditions mentioned in regulation 7(1)(k) are met.

(2) A storage site may be closed if—

(a) the consent of the authority has been given following an application under paragraph (3); and

(b) any conditions attached to that consent have been met.

(3) An application for the authority's consent to the closure of the site must—

(a) be made in writing and sent to the Department of Energy and Climate Change; and

(b) contain the reasons why the operator proposes to close the site.

(4) A site may not be closed under paragraph (1) or (2) unless a post-closure plan has been approved under regulation 13.

(5) Where regulation 11 applies, the site must be closed if no storage permit is granted following an application considered under regulation 11(2)(a).

Post-closure plan

13.—(1) Before applying for a storage permit, the licence-holder must draw up a proposed provisional post-closure plan that is—

(a) based on best practice; and

(b) in accordance with the requirements of Annex II to the Directive.

(2) Before granting a storage permit, the authority must—

(a) approve that proposed plan, or

(b) require the operator to make such modifications to it as the authority considers necessary, and the provisional post-closure plan is the plan as so approved or modified.

(3) Prior to the closure of the site in accordance with regulation 12(1) or (2), the operator must submit a proposed post-closure plan to the authority for its approval.

(4) That proposal must be based on the provisional post-closure plan, subject to any modifications proposed by the operator.

(5) In deciding whether to propose any such modifications, the operator must take into account—

(a) an analysis of any relevant risks;

(b) current best practice; and

(c) any relevant improvements in the available technology.

(6) The authority may—

(a) approve that proposed plan, or

(b) require the operator to make such modifications to it as the authority considers necessary, and the post-closure plan is the plan as so approved or modified.

Post-closure obligations

14.—(1) This regulation applies after the site has been closed.

- (2) The operator must continue to—
- (a) monitor the site in accordance with the provisions contained in paragraph 2 of the Schedule;
 - (b) comply with its reporting and notification obligations in accordance the provisions contained in paragraph 3 of the Schedule (with the exception of paragraph 3(4)(b)); and
 - (c) comply with its obligations to take corrective measures in accordance with the provisions contained in paragraph 5 of the Schedule.
- (3) However, for those purposes any reference to the monitoring plan or the corrective measures plan is to be read as a reference to the post-closure plan.
- (4) The operator must seal the storage site and remove the surface and injection facilities in accordance with any obligations arising under Part 4 of the Petroleum Act 1998(a).
- (5) [This regulation is without prejudice to any obligations arising under the ETS Directive or under Article 5 to 8 of Directive 2004/35/EC.]

Enhanced petroleum recovery

Enhanced petroleum recovery

15.—(1) Where paragraph (2) applies, and subject to paragraph (4), the use of CO₂ at a controlled place for a purpose ancillary to getting petroleum is to be regarded as—

- (a) an activity within section 17(2); and
- (b) the storage of gas for the purposes of section 1(3)(b);

but this is without prejudice to Part 1 of the Petroleum Act 1998(b).

(2) This paragraph applies where—

- (a) under the terms of a petroleum licence, CO₂ may be injected into a site at that controlled place;
- (b) the holder of the petroleum licence has notified the Secretary of State that—
 - (i) the CO₂ injected is to be verified as captured and transported for permanent storage to a facility at that site, for the purposes of Article 12(3a) of the ETS Directive(c); and
 - (ii) the holder proposes to apply under these Regulations for a licence enabling CO₂ to be stored at that site.

(3) This regulation (apart from paragraph (1)(b)) applies to the use of CO₂ in a designated place as it applies to use in a controlled place.

(4) Until a storage permit is granted in respect of the site, section 17(2) does not prevent the use of CO₂ at the controlled place for a purpose ancillary to getting petroleum.

(5) In this regulation—

- (a) “controlled place” has the meaning given by section 17(3);
- (b) “designated place” means a place in, under or over waters in an area designated under section 1(7) of the Continental Shelf Act 1964(d) that are not waters within a Gas Importation and Storage Zone; and
- (c) “petroleum licence” means a licence under section 3 of the Petroleum Act 1998 or section 2 of the Petroleum (Production) Act 1934.

(a) Section 30 of the Energy Act 2008 applies Part 4 of the Petroleum Act 1998 to carbon storage installations (as defined by section 30(5)).

(b) 1998 c. 17.

(c) Paragraph 3a was inserted by Directive 2009/29/EC, OJ No L 140, 5.6.2009, p 63.

(d) 1964 c. 29.

[Date]

[Minister of State]
Department of Energy and Climate Change

SCHEDULE

Regulation 7(2)

PROVISIONS TO BE INCLUDED IN A STORAGE PERMIT

Acceptance and injection of CO₂

1.—(1) In order to be injected into the site, the CO₂ stream must consist overwhelmingly of carbon dioxide, and must in particular satisfy the conditions in sub-paragraph (2).

(2) The stream—

- (a) must contain no waste or other matter added for the purposes of disposal;
- (b) may contain incidental or tracer substances only if the concentrations of such substances are below the levels that would—
 - (i) adversely affect the integrity of the site or the relevant transport infrastructure;
 - (ii) pose a significant risk to the environment or human health; or
 - (iii) breach the requirements of any applicable legislation.

(3) In sub-paragraph (2), “incidental substance” means a substance which has become associated with the CO₂ either at its original source or as a result of the processes of capture or injection; and “tracer substance” means a substance which has been added to the CO₂ in order to assist in the monitoring and verifying of its migration after injection.

(4) Before accepting and injecting the stream, the operator must carry out—

- (a) an analysis of the composition of the stream, and in particular of any corrosive substances that may be present in it; and
- (b) an assessment of the risk that the stream will fail to comply with the conditions in sub-paragraphs (1) and (2).

(5) The operator must maintain a register, at a place and in a manner approved by the authority, of the quantities and properties of streams that have been delivered to, and injected in, the site.

Monitoring

2.—(1) The operator must carry out a programme of monitoring of the storage complex and injection facilities, for the purposes specified in sub-paragraph (3).

(2) Such monitoring must include (where possible) the monitoring of the CO₂ plume, and (where appropriate) of the surrounding environment.

(3) The purposes are—

- (a) the comparison of the actual and modelled behaviour of the CO₂ (and the formation water) in the site;
- (b) the detection of any significant irregularities;
- (c) the detection of any migration of CO₂;
- (d) the detection of any leakage of CO₂;
- (e) the detection of any significant adverse effects on the surrounding environment, and in particular on—
 - (i) drinking water,
 - (ii) human populations, and
 - (iii) users of the surrounding biosphere;
- (f) the assessment of the effectiveness of any corrective measures taken;

(g) the continued assessment of the matters referred to in regulation 6(1)(a) and (b), and in particular of the safety and integrity, both short- and long-term, of the storage complex (including an assessment of whether the stored CO₂ will be completely and permanently contained).

(4) The monitoring must be based on a plan drawn up by the operator and approved by the authority.

(5) The monitoring plan must be drawn up in accordance with the requirements in Annex 2 to the Directive, and must also take into account the obligations imposed on the operator under Article 14(2) of the ETS Directive.

(6) An updated monitoring plan must be drawn up in accordance with the requirements in Annex 2 to the Directive, and in any event within five years of the approval of the original plan.

(7) The updated plan must be submitted for approval by the authority, and if the authority does not approve the plan a revised plan that meets the authority's approval must be submitted within a time period to be specified by the authority.

(8) The requirements of sub-paragraphs (6) and (7) apply to the further updating of an updated plan as they apply to the updating of the original plan.

Reporting and notification

3.—(1) Subject to sub-paragraph (2), on the first anniversary of the commencement of injection, and on each subsequent anniversary, the operator must send to the authority a report containing the information specified in sub-paragraph (4) in respect of the relevant reporting period.

(2) The authority may at any time require the information to be sent by the operator at such more frequent intervals as the authority may determine.

(3) For those purposes, the relevant reporting period is—

- (a) the interval of one year ending with the date on which the report is required to be sent to the authority; or
- (b) where sub-paragraph (2) applies, the shorter interval, ending on that date, which has been determined by the authority under that sub-paragraph.

(4) The information is—

- (a) the results of the monitoring of the storage complex (including details of the monitoring technology employed);
- (b) the quantities, characteristics and composition of the CO₂ streams delivered to, injected by, and registered by the operator;
- (c) proof that financial security has come into effect and remains in force;
- (d) any other information requested by the authority that the authority considers relevant for the purposes of assessing compliance with the conditions of the storage permit or for knowledge of the behaviour of the CO₂ stored at the site.

(5) A request for information under sub-paragraph (4)(d) may be made either before or after the end of the relevant reporting period, but in either case the operator must be allowed a period of at least four weeks to respond to the request.

(6) If the operator becomes aware of any leakages or significant irregularities, the operator must immediately notify the authority.

(7) If the operator becomes aware of any leakages, or of any significant irregularities which imply the risk of leakage, the operator must immediately notify [the person who is the regulator in relation to the site for the purposes of the Greenhouse Gas Emissions Trading Scheme Regulations 2005(a)].

(a) SI 2005/925, amended by SI 2005/2903, 2006/737, 2007/465, 2007/1096 and 2007/3433 and 2007/3538.

Notification of changes

4.—(1) The operator must notify the authority of—

- (a) any changes planned in the operation of the site and
- (b) any changes affecting the operator itself.

(2) Where such a notification is made, the storage permit is subject to modification in accordance with regulation 10.

Corrective measures

5.—(1) If the operator becomes aware of any leakages or significant irregularities, the operator must take the necessary corrective measures.

(2) Those corrective measures must include the measures envisaged by the plan approved by the authority for this purpose.

Financial security

6.—(1) The operator must maintain financial security that—

- (a) is sufficient to ensure that the obligations specified in sub-paragraph (6) can be met;
- (b) is in force before the commencement of injection; and
- (c) remains in force until the licence is terminated.

(2) However, if the storage permit is revoked the security must remain in force—

- (a) until a new storage permit is granted; or
- (b) if the site is closed following such revocation, until the licence is terminated and the financial contribution obligation is fulfilled.

(3) In sub-paragraph (2)(b), “financial contribution obligation” means the obligation of the operator to make a contribution in accordance with the arrangements made by the authority under Article 20 of the Directive.

(4) Following each report made by the operator in accordance with the provisions contained in paragraph 3, the authority must assess whether the amount secured is appropriate in the light of—

- (a) the assessed risk of leakage;
- (b) the estimated costs of meeting the obligations specified in sub-paragraph (6).

(5) If, following that assessment, the authority decides that the amount is to be adjusted—

- (a) the authority must notify the operator of the new amount required to be secured; and
- (b) the operator, within [four] weeks of receiving that notification, must ensure that the amount secured is increased to the new amount.

(6) The obligations are—

- (a) all obligations arising under the storage permit, including those arising in respect of the closure of the site and during the period between such closure and termination of the licence; and
- (b) any obligations arising in respect of the storage site under the ETS Directive.