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CO₂ SEQUESTRATION IN SUB-SEABED GEOLOGICAL FORMATIONS (LP)

Review of CO₂ Sequestration Permit under the London Protocol – An assessment of the proposed P18-4 CO₂ storage site in the Netherlands¹

Submitted by OECD

SUMMARY

Executive summary: The annex to this document contains a review of a CO₂ Sequestration Permit under the London Protocol as part of the assessment of the proposed P18-4 CO₂ storage site in the Netherlands

Action to be taken: Paragraph 9

Related documents: None

Background

1 The P18-4 field, originally part of the ROAD² carbon capture and storage (CCS) Project, is a near-depleted gas field at a depth of 3.5 km under the seabed, located approximately 20 km off the Dutch coast in the North Sea. The operator of the gas field applied for a CO₂ storage permit to the Dutch authorities in 2011. The objective of this report is to assess to what extent the proposed P18-4 storage site complies with the London Protocol's *2012 Specific Guidelines for Assessment of Carbon Dioxide Streams for Disposal into Sub-seabed Geological Formations* (CO₂ Specific Guidelines), and therefore the 1996 London Protocol itself.

2 The project was permitted primarily under the Dutch Mining Act (2011). This Act applies the conditions required by the EU's CCS Directive (2009). This Directive applies the

¹ Report published by OECD/IEAGHG.

² The ROAD Project is a planned post-combustion capture unit on a coal-fired power plant in the Rotterdam harbour, capable of capturing 1.1 Mton CO₂ per annum (equivalent of decarbonizing 250MWe coal-fired power production).

conditions required by the OSPAR CCS amendment and permit guidelines (2007). These follow closely the conditions required by the London Protocol amendment (2006) and CO₂ Specific Guidelines (2007 version). Therefore it would be hoped that the conditions required on the project at the national level should be consistent with those of the London Protocol.

3 The assessment has been achieved through a simple, but systematic, cross-check of the requirements of the CO₂ Specific Guidelines against the contents of the application material provided by the operator to the National Authority. This involved the appraisal of approximately 1,100 pages of submitted material in order to identify evidence of compliance. TNO were contracted by IEAGHG to undertake this assessment and this report, found in the annex to this document represents their findings (IEAGHG Report 2016/TR4, May 2016).

Results

4 The material submitted to the National Authority is broadly sufficient to allow an evaluation of the planned CO₂ storage activities in a manner consistent with the provisions of the 1996 London Protocol. This compliance assessment indicates overall technical compliance with the CO₂ Specific Guidelines, no information was sufficiently absent that would indicate clear non-compliance with the CO₂ Specific Guidelines.

5 There are eight areas from within the application material which would benefit from further clarification. In addition, there is also one area of partial compliance and one of non-compliance from within the permit conditions which is the responsibility of the National Authority.

6 A number of recommendations are provided to address some areas that have been identified by this assessment. The recommendations are relevant both for this specific case study and also for future CO₂ storage permits in marine territories of Contracting Parties.

Recommendations to the National Authority

7 The following recommendations are made to the National Authority:

- .1 it should be requested that within any future permit applications, that the applicant makes a statement recognizing the applicability of the 1996 London Protocol and the requirements of the Specific Guidelines for Assessment of Carbon Dioxide for Disposal into Sub-seabed Geological Formations;
- .2 the applicant should be requested to explicitly highlight an "Impact Hypothesis", which could be an additional concise statement as part of the outcome of the standard risk assessment;
- .3 for future permit allocations for CO₂ storage sites provided by the national authorities of Contracting Parties, it is recommended that a brief summary of conformance with the requirements of the 1996 London Protocol is included in the preamble to the permit conditions;
- .4 if it has been decided not to develop an Action List, due to a limited number of CO₂ streams for storage, this should be explicitly mentioned as part of the LP compliance summary recommended above;
- .5 the National Authority should ensure that fixed intervals for permit review are explicitly mentioned in the permit conditions; and

- .6 recognizing the focus of the London Protocol on protecting the marine environment, the applicant should provide a clear statement on the foreseen effects of CO₂ leakage on the marine environment, including seawater, sediments and biota.

Recommendations to the Contracting Parties to the London Protocol

8 The following recommendations are made to the Contracting Parties to the London Protocol:

- .1 clarification could be sought on the extent to which the applicant must comment on the economic and operational feasibility as a consideration in the selection of a sub-seabed geological formation for the disposal of CO₂ streams; and
- .2 clarification could be sought on the extent and nature of public participation recommended in the permitting process of CO₂ storage sites, given a lack of experience and suitable legal provisions for enforcing such participation in some Contracting Parties.

Action requested of the governing bodies

9 The governing bodies are invited to take note of the information provided and to comment as they deem necessary.
