

Executive Order on Submission of Samples and Other Information about the Danish Subsoil

Under section 34(1) and section 38(2) of the Act on the Use of the Danish Subsoil, cf. Consolidated Act No. 552 of 29 June 1995, the following is laid down:

General provisions

1. In this Executive Order, the term licensee shall mean any party carrying on activities under a licence granted pursuant to Act on the Use of the Danish Subsoil (the Subsoil Act) as well as a concession or a licence granted under Act No. 181 of 8 May 1950 on Exploration for and Recovery of Raw Materials in the Subsoil of the Kingdom of Denmark, cf. section 40 of the Subsoil Act.

2.- (1) Under the provisions of this Executive Order, the licensee shall, free of charge, submit samples and other information acquired during the performance of the activities comprised by the Subsoil Act.

(2) The obligation referred to in subsection (1) above shall extend to any activity comprised by the Subsoil Act, including activities to be carried out on the authorities' order, e.g. under the terms of a licence, as well as any additional activities.

Submission of samples and information

3.- (1) The licensee shall submit the samples and information referred to in subsections (2)-(5) below as soon as they are available.

(2) For geophysical surveys the following are to be submitted:

(i) Information about lines collected, number of km per line and the total number of km collected in the previous week. For threedimensional surveys the same informations shall be submitted with informations on number of km². The information shall be submitted by fax or in electronic form according to more specific agreement with the Danish Energy Authority and the Geological Survey of Denmark and Greenland while the surveys are conducted.

(ii) Information about seismic measurements as stated in schedule 1, paragraph I, No. 1.

(iii) Information about gravity and magnetic measurements as stated in schedule 1, paragraph I, No. 2.

(3) For geochemical surveys, the reports, maps, data and samples referred to in schedule 1, paragraph II, shall be submitted. The amount of sample material and their packaging shall be agreed with the Geological Survey of Denmark and Greenland. The samples taken shall be provided with the necessary identification, including indication of location.

(4) For wellsite, subsoil and soil surveys, the reports, maps, data and samples referred to in schedule 1, paragraph III, shall be submitted. The number of samples and their packaging shall be agreed with the Geological Survey of Denmark and Greenland. The samples taken shall be provided with the necessary identification, including indication of location.

(5) For drilling operations the following are to be submitted:

(i) Report on the previous day's operations and results, cf. Schedule 1, paragraph IV, No. 1. The report shall from the time the drilling equipment is positioned at the wellsite and until the wellsite is abandoned be submitted daily before 11.00 a.m. by telefax or in electronic form according to more specific agreement with the Danish Energy Authority and the Geological Survey of Denmark and Greenland.

(ii) Monitoring and surveying data from the well as stated in schedule 1, paragraph IV, No. 2.

(iii) In case of sampling (cuttings, drilling fluid, sidewall cores, cores and formation fluids), sampled material as stated in schedule 1, paragraph IV, No. 3. The samples shall be provided with a durable marking indicating the well designation and sample depth, so that the samples can be identified at all times. The samples shall be delivered in packaging which provides for long-term identification and storage.

(iv) Reports on analyses of samples from the well as stated in schedule 1, paragraph IV, No. 4.

(v) Reports on raw data and processing results for test production as stated in schedule 1, paragraph IV, No. 5.

(vi) For test production concluding report as stated in schedule 1, paragraph IV, No.6. The report shall be submitted no later than six months after termination of the drilling operation.

(vii) Final reporting as stated in schedule 1, paragraph IV, No. 7. The report shall be submitted no later than six months after termination of the drilling operation.

(6) The core material, including sidewall cores, shall be deposited with the Geological Survey of Denmark and Greenland within one year after termination of the drilling operation. The Danish Energy Authority may on request postpone the deadline for such depositing and may in special circumstances grant exemptions from the requirement for samples to be deposited with the Geological Survey of Denmark and Greenland, provided that they can be deposited satisfactorily elsewhere.

(7) In addition to the samples and information mentioned in subsections (2) to (6), The Danish Energy Authority and the Geological Survey of Denmark and Greenland may demand the submission of other significant samples and information.

Exemptions

4. The Danish Energy Authority may in special cases grant exemptions from the provisions in section (3) of this Executive Order.

Penalties, etc.

5.- (1) Any infringement of sections 2-4 of this Executive Order shall be punishable by a fine unless higher penalty are provided for under section (38) of the Subsoil Act.

(2). Where infringements are committed by a public or private company or cooperative society (body corporate), fines may be imposed on the company or society as such pursuant to chapter 5 of the Criminal Act.

Commencement

6.- (1) This Executive Order shall come into force on 1 March 2002.

(2). As from that date, Executive Order No. 13 of 7 January 1991 on the Submission of Samples and Other Information about the Danish Subsoil shall be repealed.

(3). For samples and other information acquired before the coming into force of this Executive Order but not submitted to the Danish Energy Authority and the Geological Survey of Denmark and Greenland, the licensee may submit those samples and other information in accordance with Executive Order No. 13 of 7 January 1991.

Ministry of Economic and Business Affairs, the 4 February 2002

BENDT BENDTSEN

/Peter Helmer Steen

Schedule

Samples and other information to be submitted under the provisions of the Executive Order

Unless otherwise provided, the samples and other information mentioned below shall be submitted to both the Danish Energy Authority and the Geological Survey of Denmark and Greenland ("GEUS").

I. Geophysical surveys

1. Seismic measurements:

- a) Digital seismic field data in SEG-Y or another standard format shall be sent to GEUS on IBM3590 tapes or another medium agreed with GEUS. Unless GEUS requests the field data to be submitted at another time the data shall be submitted at the time of expiry of the confidentiality period for the data in question, cf. the provisions in the permit according to which the data has been acquired, however data acquired according to an exclusive licence shall be submitted not later than at the time of expiry of the licence.
- b) Processed digital navigation data in UKOOA format with exact format specifications and indication of the central meridian shall be submitted to GEUS on IBM3590 or Exabyte tapes or another medium agreed with GEUS.
- c) A hard copy shotpoint map showing the location of the acquired data shall be submitted to GEUS.
- d) Acquisition report containing the necessary information for reprocessing purposes. Observers log as digital data in tif format on CDrom or another media agreed with GEUS.
- e) Processed and stacked seismic data with raw stack, stack and final migration shall if produced be submitted to GEUS in SEG-Y format on IBM3590 or Exabyte tapes or another medium agreed with GEUS.
If data is scaled to a Landmark workstation such data shall be submitted on Exabyte tapes to the Danish Energy Authority and on IBM3590 or Exabyte tapes to GEUS. Data scaled to other seismic workstations shall be submitted to GEUS.
If the licensee produces hard-copy versions of stacked and migrated seismic lines, corresponding versions shall be submitted to GEUS. If the licensee produces hard-copy versions of migrated seismic lines, a folded copy shall likewise be submitted to DEA.
- f) Stacking and migration velocities in Esso V2 format shall be submitted to GEUS on IBM3480, IBM3590 or Exabyte tapes or another medium agreed with GEUS.
- g) Processing reports shall be submitted to GEUS.
- h) If other special processing or reprocessing is carried out, such data shall be submitted in accordance with the provisions contained in paragraph I, 1, e-g, above.
- i) Interpretation reports.

2. Gravity and magnetic measurements:

- a) Report documenting method of measurement and calibration shall be submitted to GEUS.
- b) Free-air and Bouguer gravity maps as well as a total magnetic field map.
- c) Measurements and any processed data in digital form shall be submitted to GEUS in a well-documented standard format immediately readable by GEUS, either on IBM3590 tapes or another medium agreed with GEUS.
- d) Interpretation reports.

II. Geochemical surveys

1. Reports:
Results from geochemical surveys with information about exact locations and analytical methods and standards applied, including reference standards. Furthermore, a systematic presentation of the results specifying all tested substances, including light and heavy hydrocarbons.
2. Maps, data and samples:
 - a) Maps in a commonly used scale.
 - b) Data shall be submitted to GEUS on an electronic medium in a well-documented format immediately readable by GEUS, accompanied by a hard-copy version, provided that this is a suitable mode of representation for the data concerned
 - c) Sets of all samples collected shall be submitted to GEUS, cf. section 3(3) of the Executive Order.

III. Wellsite, bottom and soil surveys

1. Reporting:
Reports containing survey data and results, methods of analysis, interpretations and evaluations.
2. Maps, data and samples:
 - a) Maps, including shotpoint and navigation maps, in a commonly used scale shall be submitted to GEUS.
 - b) Processed data and navigation data shall be submitted to GEUS on an electronic medium in a well-documented format immediately readable by GEUS, accompanied by a hard-copy version, provided that this is a suitable mode of representation for the data concerned.
 - c) A folded paper copy of all seismic lines and a folded paper copy of any other types of survey shall be submitted to GEUS.
 - d) In connection with sampling a set of samples collected shall be submitted to GEUS, cf. section 3(4) of the Executive Order.

IV. Drilling operations

1. Daily reporting during drilling operations. Daily reports shall include all main data about the work carried out in the preceding 24-hour period, including a geological description of the layers penetrated and descriptions of any cores extracted and any results obtained from geophysical measurements made in the well during drilling
2. Daily monitoring and surveying data from the well, including information concerning investigations made in wells used for the production and/or injection of oil, gas or water.
 - a) Measurements in the well:
Results of measurements and interpretations carried out shall be submitted as paper copies of each printed scale from every log run. Raw data recorded on an electronic medium shall be submitted to GEUS in a well-documented standard format (usually LIS/DLIS) immediately readable by GEUS on CDrom, Exabyte tape or another medium agreed with GEUS. If data is scaled to a Landmark workstation such data shall be submitted to the Danish Energy Authority on Exabyte tapes or another agreed medium. Basic information relating to the collection of data shall be presented in such a way that all measurements are

easily identifiable. In case of image logs, processed data shall be submitted in a well-documented format immediately readable by GEUS.

b) Directional measurements:

A directional measurements report shall be submitted as soon as it is available. Data shall also be submitted on an electronic medium in a well-documented and immediately readable standard format.

c) For seismic measurements in the well (Vertical seismic profile or walk-away seismic measurements) a set of raw data and of standard-processed data shall be submitted. Data in digital form shall be submitted to GEUS in a well-documented standard format immediately readable by GEUS (normally SEG Y, however for time-depth tables ASCII).

3. Sampling: The following types of geological samples shall be submitted to GEUS, cf. section 3(5) (iii) in the Executive Order:

a) Cuttings. A set of washed and dried samples as well as a set of wet samples. These samples shall be taken at the same intervals as the samples collected for the licensee's own use.

b) Drilling fluid. For exploration wells samples shall be taken from the inlet side after any qualitative change in additives and prior to test production, however for at least every 300 m drilled. Sample volumes and packaging shall be agreed upon with GEUS.

c) Sidewall cores. Where such cores are extracted, the remaining core material shall be deposited with GEUS within one year of termination of the drilling operation. It shall be ensured that the amount of remaining core material submitted to GEUS is sufficient to allow a lithological evaluation and petrographical, clay-mineralogical, micropaleontological and palynological analysis. If specimens of extracted sidewall core material are prepared for paleoanalysis, a set of paleontological and palynological slides (an original or extra set) shall be submitted to GEUS immediately upon completion of the analysis.

d) Cores, cf. section 3(5) (iii) of the Executive Order. Furthermore, the provision laid down in section 3(6) in the Executive Order shall be applicable.

e) Formation fluid. Where possible, samples under pressure shall be taken of all fluids and gases produced in all well sections subjected to production tests, as well as from sections sampled by other methods. Sample volumes and packaging shall be agreed upon with GEUS.

4. Reports on analyses from the well samples. Any reports available in electronic form shall also be submitted.

a) Report on any stratigraphical, sedimentological and paleontological surveys.

b) Core descriptions as well as photographs under white and ultraviolet light of core material from all cores.

c) Results from measurements and analyses of core material.

d) Qualitative and quantitative analysis of any formation water produced.

e) Report on pressure, volume and temperature relations for any hydrocarbons produced (PVT report).

f) Reports on any source rock analyses.

5. Reports on raw data and interpreted results relating to production tests. Any reports available in electronic form shall also be submitted.

a) Reports on raw data, including pressure and temperature measurements, both in the well and at the surface, as well as separator conditions, size of orifice, course of operation, production rates and cumulative production.

6. For all production tests carried out, a summarized report with the main conclusions shall be submitted within six months of termination of the drilling operation. The report shall include the following:
 - a) An account of the course of the individual production tests, including perforation pattern and interval, a description of any well stimulation and clean-up.
 - b) An outline of the measurement data used in test production analyses.
 - c) An outline of any parameters used in test production analyses that did not derive from direct measurement, as well as a documented account of the reasons for choosing such parameters.
 - d) An outline of the computed values obtained in production tests, including permeability, radius of influence and flow efficiency.
 - e) All master curves and plots used in the analysis of production tests with indication of match points.
 - f) Detailed evaluation and conclusion as regards the results obtained and the basis for their interpretation.

If available the report shall also be submitted in digital form.

7. Final reporting. Any reports available in electronic form shall also be submitted. Summarized technical/geological report, cf. section 3(5) (vi) of the Executive Order, including:
 - a) Outline of main well data, name of the well, its location according to geographical and UTM coordinates, drilling rig, water depth/ground level, reference level, operator, contractor, date and time of the operation, total number of hours spent and total depth with indication of the geological age.
 - b) Summary of the course of drilling operations, indicating any technical problems and assessing their possible causes.
 - c) Summary of geological information obtained during the drilling operations.
 - d) General information about casing used and results of cementing.
 - e) Description of drilling mud used.
 - f) Detailed description, including a chart showing the well status upon completion of the work.
 - g) A composite log of the measurements made in the well, indicating core and test production intervals, casing and casing cementation, plugs, lithology and selected logs.
 - h) A composite log of the results of drilling fluid analyses made during drilling operations.