Guidelines for submission of samples and other information on Denmark's Subsoil (Unofficial translation. In case of discrepancy, the original Danish text shall prevail)

Revision 1.0 1 July 2025

CONTENT

ANNEX C - Final Well Report

INTRODUCTION

Pursuant to Section 34(1) of the Subsoil Act[1)] samples and other information on the subsoil obtained in the course of the exercise of activities covered by the Subsoil Act shall be submitted in accordance with the rules laid down by the Minister for Climate, Energy and Utilities.

These samples and information shall be submitted to the Danish Energy Agency and GEUS in accordance with the guidelines set out in Executive Order No. 543 of 22 May 2025 on submission of samples and other information on Denmark's subsoil (https://www.retsinformation.dk/eli/lta/2025/543). In these guidelines, this is referred to as 'the Executive Order'. All other executive orders will be mentioned by name and number.

These guidelines provide detailed information on the individual information and data types, including which formats should be submitted and with which media. A table of all data types and recommended formats can be found in Annex A to these guidelines.

Anyone who is required to submit samples and information under Section 34(1) of the Subsoil Act is expected to inform themselves of the contents of the Executive Order and these guidelines before data acquisition. In general, indicative data types and formats can be expected to comply with applicable industry standards.

Questions can be addressed to the Danish Energy Agency or GEUS via email:

- Danish Energy Agency: indvindingsekr@ens.dk
- GEUS: info-data@geus.dk

GENERAL GUIDELINES

When submitting reports and data, the following general guidelines apply, as set out in Section 3 of the Executive Order.

Please see the dedicated section and Annex A to these guidelines for specific information on each data type.

Geodetic reference systems and depth references

Please indicate coordinates in the following reference systems, pursuant to Section 3(2) of the Executive Order.

- Offshore, west of 6º 15' Ø: ED50 (UTM 31 N)
- Onshore: UTM/ETRS89 (UTM 32 N or 33 N depending on location)

For onshore data, please specify the applied digital elevation model where relevant.

Depth references, such as RT (rotary table), KB (kelly bushing), elevation/GL (ground level), are to be indicated.

Reports

- All reports shall have clear basic data, including license number, area/field, date, operator, and whether the report is a delivery defined in a work programme.
- Reports should be submitted digitally in searchable PDF format. If, for example, analysis data is associated with the report, these should be submitted as a spreadsheet.

- All mentioned annexes shall be included. Independent reports carried out by e.g. a contractor are to be reported on as independent reports and are not to be submitted as an annex to, for example, the final report.
- Only the final version of a report is to be submitted. If an updated version of a previously submitted report is submitted, specify which previously submitted report it replaces and the reasons for the change.
- Files can be compressed (zip).
- Links (embedded files) in reports should be avoided. If necessary, the destination files must be included in the same medium in order to preserve links.
- Reports and any potential annexes and associated files shall be logically structured, have a consistent naming system and be easy to identify.
- The final well report and the reporting of geophysical surveys, processing or re-processing, shall contain a list of deliverables describing the samples and information provided.

- The reports submitted shall be clearly described in the letter of transmittal.
- Information on when a report has been available to the operator shall be provided in the letter of transmittal.

Samples and information (data)

- A copy of all collected and produced, raw and processed data shall be submitted.
- Only the final version of a file is to be submitted. If an updated version of previously submitted data is submitted, it shall be indicated in the letter of transmittal which previously submitted file it replaces, as well as the reasons for the change(s).
- Files can be compressed (zip).
- Regardless of format and medium, data shall be logically structured, have a consistent naming structure and be easy to identify.
- Unrelated data should be kept separated by each data type in logically named folders.
- Data submitted in industry standard formats such as SEG-Y, UKOOA or OGP should follow the official standards for these.
- The data submitted shall be clearly described in the letter of transmittal.
- Information on when data has been available to the operator shall be provided in the letter of transmittal.

Deadlines for submission of samples and information

The following is a summary of the deadlines set out in the Executive Order:

- Progress reports, pursuant to Section 3 of the Executive Order, shall, at the latest, be submitted every 7 days during the acquisition period.
- During drilling operations, cf. Section 13, daily reports containing information on the last 24 hours of work shall be submitted and shall reach the Danish Energy Agency and GEUS by no later than 11:00 a.m.
- Interpretation reports and analysis results of geophysical surveys shall be submitted to the Danish Energy Agency and GEUS no later than 8 weeks after these have been prepared, cf. Section 4.
- Information on subsequent processing such as special processing work or reprocessing of the data shall be submitted to GEUS within 8 weeks of their completion, cf. Section 5.
- Physical samples shall be sent at least 1 year after collection for deposition at GEUS.
- All other information shall be submitted within 6 months after acquisition, except pursuant to Section 6, nos. 5 - 7.

LIST OF ABBREVIATIONS

1VD	First Vertical Derivative
AQM	Automated Quantitative Mineralogy
ASCII	American Standard Code for Information Interchange
BHA	Bottom Hole Assembly
CPI	Computer Processed Interpretation
CPT	Cone Penetration Test
CSEM	Controlled Source Electro Magnetics / Combined electromagnetic measurements
DAS	Distributed Acoustic Sensing
DSS	Distributed Strain Sensing
DTS	Distributed Temperature Sensing
EBCDIC	Extended Binary Coded Decimal Interchange Code
ED50	European Date 1950
ETRS89	European Terrestrial Reference System 1989
FDSN	International Federation of Digital Seismograph Networks
FWR	Final Well Report
GeoTIFF	Tagged Image File Format with Integrated Spatial References
GIS	Geographic Information System
GEUS	National Geological Surveys for Denmark and Greenland
HDF5	Hierarchical Data Format 5
IGRF	International Geomagnetic Reference Field
IASPEI	International Association of Seismology and Physics of the Earth's Interior
ISF	IASPEI Seismic Format
LWD	Logging While Drilling
MBES	Multi Beam Echo Sounder
MD	Measured Depth
MSL	Mean Sea Level
MT	Magnetotellurics
MWD	Measurements While Drilling
OBH	Ocean Bottom Hydrophone
OBM	Oil Based Mud
OBS	Ocean Bottom Seismophone
OGP	Geophysical data exchange format
RT	Rotary Table
SBES	Single Beam Echo Sounder
SEED	Standard for the Exchange of Earthquake Data
SEG-D	Society of Exploration Geophysicists, D-format
SEG-Y	Society of Exploration Geophysicists, Y-format
SSS	Side Scan Sonar
SVP	Sound Velocity Profile
TEM	Transient Electromagnetic Method
TMI	Total Magnetic Intensity
TOC	Total Organic Carbon
TVD	True Vertical Depth
UKOOA	United Kingdom Offshore Operators Association

UTM	Universal Transverse Mercator
WBM	Water Based Mud

SPECIFIC GUIDELINES

The following sections describe the specific guidelines for the submission of geological, geophysical, geotechnical and geochemical data, respectively, and for drilling operations. For information on methods or data that is not provided in the Executive Order or the guidelines, please refer to the Danish Energy Agency for more details.

The sections follow the structure of the Executive Order. The headings refer to the relevant paragraph of the Executive Order.

The obligation to submit information includes all data and reports that are a regular part of the acquisition and processing process and which are held by the licenseholder. For the record, it should be clarified that the Executive Order does not impose an obligation to produce information or physical samples that are not naturally produced or obtained by activities under a license or are evident from an obligation under a permit under the Subsoil Act.

Detailed information on formats and media is compiled in table form in Annex A to these guidelines.

1. **Sections 3-10 Geophysical surveys**

Geophysical data includes, for example, seismic, gravimetric, electromagnetic, magnetic, and acoustic surveys, etc.

The obligation to submit information includes all data and reports that are a regular part of the acquisition and processing process and which are held by the licenseholder.

Section 3:

1) For *all types of* geophysical data, the following shall apply to reporting during the data acquisition process:

Progress/status reports are to be submitted to both the Danish Energy Agency and GEUS containing information on:

1. Planned scope of the survey, including planned lines (km) or areas (km^2).
   a. Lines or areas are indicated on maps with north arrow and scale and in table form. For surveys on land, geographical background maps are to be used.
2. Number of km or km^2 completed in the previous week.
   a. Completed sections of lines or areas are indicated on maps with north arrow and scale and in table form. The executed parts of lines or areas are marked with a colour that differs from the planned parts.
3. The total number of km or km^2 completed during the acquisition.
   a. To be given in table format.

The progress reports are to be sent to the Danish Energy Agency by e-mail, as specified in the investigation permit according to Section 28 of the Subsoil Act, and to GEUS: SubsurfaceA@geus.dk. Progress reports are to be sent every 7 days at during the data acquisition period.

Section 4:

By ‘interpretation reports and analysis results’, is meant both final and written reports of performed interpretations of data and presentations of interpretation results in e.g. power point/pdf format. Which of

these types of documentation that are to be submitted depends on the work programme and agreements with the Danish Energy Agency regarding the necessary documentation. This documentation shall be submitted no later than 8 weeks after the assessments have been prepared.

Section 5:

'Special processing' means, for example, numerical or elastic inversions of geophysical data. Information on the re-processing of data shall be submitted, regardless of the point in time after data collection this re-processing is carried out, no later than 8 weeks after the re-processing or special processing has been carried out. See also 'General Guidelines – Samples and Information (data)' in these guidelines for information on submission.

Guidelines specific to each geophysical method are listed below in Section 1.1 - 1.6.

1.1. Section 6 Seismic surveys

This includes reflection and refraction seismic data, Sub Bottom Profiler, Distributed Acoustic Sensing (DAS), and micro-seismic monitoring, etc.

Seismic studies are divided into:

1.1.1. Reflection seismics
1.1.2. Near and wide-angle refraction and reflection seismics
1.1.3. Distributed Acoustic Sensing
1.1.4. Micro-seismic monitoring

1.1.1. Reflection seismics

Including deep single and multi-channel reflection seismics, shallow seismics (Sub-Bottom Profiler, pinger, chirp, sparker, boomer, air gun), etc.

After data collection, the following information is to be submitted to GEUS:

1. Field data and related navigation data (raw and processed).
   a. Field data should be provided in SEG-D standard format.
   b. Navigation data should be provided in a standard format, as set out in Annex A.

2. Shot point data should be provided as a shape file.

3. Observer's log in electronic format, e.g. spreadsheet.
   a. Observer's log for the data collection itself. Diary from the seismic field campaign with timestamps and coordinates as well as identification of any problems in the field.

4. Data acquisition reports, including list of deliverables.

The information referred to in items 1 to 4 shall be submitted to GEUS within 6 months of acquisition, pursuant to Section 6(2), first sentence.

5. Processed data.
   a. Copy of all products delivered to the operator according to processing reports and work programme. EBCDIC, binary and trace header should be filled in according to the applicable SEG-Y

standards. If relevant, supplemented with e.g. GIS, CAD, Petrel or Kingdom projects, if this is part of the deliverables.

6. Processing reports, including list of deliverables.

The information referred to in items 5 and 6 shall be submitted to GEUS within 1 year of acquistion, pursuant to Section 6(2), 2nd sentence.

Reprocessing

The above guidelines are also to be followed for submission of reprocessed data and special processing, with the exception of Section 5 of the Executive Order concerning a submission period of 8 weeks after these have been completed.

1.1.2. Near-and wide-angle reflection and refraction seismics

After data acquisition, the following information is to be submitted to GEUS:

1. Field data and related navigation data (raw and processed data).
   a. Field data should be provided in SEG-Y standard format for wide angle refraction data (standard format). EBCDIC, binary and trace header should be completed according to the applicable SEG-Y standards.
   b. Navigation data should be provided in a standard format. For refractive seismic data collected offshore (OBH or OBS data), the following data, if these are collected, should also be submitted: Sound Velocity Profile (water column velocity), bathymetry, position, deployment and recovery position (i.e., deployment and collection location), and/or relocalised position.

2. Shot point data should be provided as a shape file.

3. Observer's log in electronic format, e.g. spreadsheet.
   a. Observer's log for the data acquisition.

4. Data acquisition reports, including list of deliverables.

The information referred to in items 1 to 4 shall be submitted to GEUS within 6 months of acquisition, pursuant to Section 6(2), first sentence.

5. Processed data.
   a. Copy of all products delivered to the operator according to processing reports and work programmes.
6. Processing reports, including list of deliverables.

The information referred to in items 5 and 6 shall be submitted to GEUS within 1 year of acquisition, cf. Section 6(1), 2nd sentence.

Reprocessing

The above guidelines are also to be followed for submission of reprocessed data and special processing, with the exception of Section 5 of the Executive Order concerning a submission period of 8 weeks after these have been completed.

1.1.3 Distributed Acoustic Sensing

Including Distributed Acoustic Sensing (DAS), Strain Sensing (DSS) and Temperature Sensing seismic survey

(DTS) etc., cf. Section 6(1), no. 5.

Following data collection, the following information is to be submitted to GEUS (before submitting information under items 1-4, the scope should be agreed with GEUS):

1. Field data and related navigation data (raw and processed data).
   a. Field data should be provided in the SEG-Y standard format or HDF5. Instrument type and configuration shall be described and positions for fibre locations shall be georeferenced.

2. Shot point data should be provided as a shapefile. The times and locations of shot points are given as attributes.
3. Observer's log in electronic format, e.g. spreadsheet.
   a. Observer's log for the data acquisition.

4. Data acquisition reports, including list of deliverables.

The information referred to in items 1 to 4 shall be submitted to GEUS within 6 months of acquisition, pursuant to Section 6(2), first sentence.

5. Processed data.
   a. Copy of all products delivered to the operator according to processing reports and work programmes.
6. Processing reports, including list of deliverables.

The information referred to in items 5 and 6 shall be submitted to GEUS within 1 year of acquisition, pursuant to Section 6(2), 2nd sentence.

Reprocessing

The above guidelines are also to be followed for submission of reprocessed data and special processing, with the exception of Section 5 of the Executive Order concerning a submission period of 8 weeks after these have been completed.

1.1.4 Micro-seismic monitoring

This includes monitoring of events with seismic signature/variation, cf. Section 6(1), no. 5.

1. After data acquisition, the following information is to be submitted to GEUS (info-data@geus.dk):
   a. Field data (the original raw data) should be submitted in SEED format or other format approved by the FDSN, including a description of the instrument type and configuration used and geo-referenced positions of the sensors.
   b. Arrival picks. First movement and geographic direction. Indicated in milliseconds (ms) and amplitudes in nanometre (nm) and should be delivered in ISF/Quake format.
   c. Position of the seismic event, including coordinates in latitude/longitude, estimate of depth of the event, time of the event and uncertainty on estimation of depth and time. Potential solutions for placement of fault plane solutions, moment sensors (i.e. description and quantification of the energy discharge that has taken place) should be delivered in ISF/Quake format.
2. Observer's log in electronic format, e.g. spreadsheet.
   a. Observer's log for the data acquisition.

3. Data acquisition reports, including list of deliverables.

The information referred to in items 1 to 4 shall be submitted to GEUS within 6 months of acquisition, pursuant to Section 6(2), first sentence.

4. Processed data.
    b. Copy of all products delivered to the operator according to processing reports and work programme.
5. Processing reports, including list of deliverables.

The information referred to in items 4 and 5 shall be submitted to GEUS within 1 year of acquisition, cf.

Section 6(2), 2nd sentence.

Reprocessing

The above guidelines shall also be followed for the submission of reprocessed data and special processing, however, cf. Section 5 of the Executive Order regarding the deadline for submission.

1.2. Section 7 Gravimetric surveys

This means measurements of variations in gravity acceleration, etc.

The obligation to submit information includes all data and reports that are a regular part of the collection and processing process and which are held by the licenseholder.

1) Within 6 months of data collection, the following information is submitted to GEUS:
    a. Raw data. Should be submitted in spreadsheet format, including the following information:
        I. Line header information.
        II. Measuring points stated in rows.
        III. Measurement parameters stated in columns.
    b. Processed data. Calculated corrections and anomalies, e.g. base station correction, terrain correction, Free Air anomaly, Bouguer anomaly, noise filtering, (First Vertical Derivative (1VD).
        I. Raw data, processed data and final data should be submitted in one spreadsheet in ASCII/xyz-format. See item 1a of this section.

Images and maps of anomalies can be submitted as GeoTIFF in UTM projection.

1.3. Section 8 Magnetic surveys

Measurements of variations in the magnetic field, etc.

The obligation to submit information includes all data and reports that are a regular part of the collection and processing process and which are held by the licenseholder.

1) Within 6 months of data acqusition, the following information is submitted to GEUS:
    a. Raw data. Should be submitted in spreadsheet format, including the following information:
        I. Line header information.
        II. Measuring points stated in rows.
        III. Measurement parameters stated in columns.
    b. Processed data. Calculated corrections and anomalies, e.g. base station correction, IGRF-correction (International Geomagnetic Reference Field), levelling/micro-levelling, noise filtering, Total Magnetic Intensity (TMI), First Vertical Derivative (1VD).

Raw data, processed data and final data should be submitted in one spreadsheet. See item 1a of this section.

Images and maps of anomalies can be submitted as GeoTIFF in UTM projection.

1.4. Section 9 Acoustic surveys

This includes multibeam Echo Sounder (MBES) and Side Scan Sonar (SSS), etc.

Acoustic surveys are divided into:

1.4.1 Single and multibeam Echo Sounder (SBES/MBES) and backscatter.

1.4.2 Side Scan Sonar (SSS).

The obligation to submit information includes all data and reports that are a normal part of collection and processing processes and which are in the hands of the licenseholder.

1.4.1. Single and multibeam echo sounder (SBES/MBES) and backscatter

1) Within 6 months of data collection, the following information is submitted to GEUS:
   a. Raw data.
      I. Raw data should be submitted in e.g .all, .s7K, or .xse format, depending on the instrument used.
      II. The vessel's track lines should be delivered as shapefiles, in line format with survey line ID as an attribute.
      III. Images should be submitted as GeoTIFF mosaics (potentially with additional attributes).
   b. Processed data.
      I. Cleaned (despiked), motion and tide corrected data should be delivered in ASCII/xyz-format.
      II. Depth data as a grid.
      III. Backscatter mosaic.
      IV. Potentially supplemented with, for example, GIS, CAD, Petrel or Kingdom projects, if this is part of the deliverable.

1.4.2 Side-scan sonar (SSS)

2) Within 6 months of data collection, the following information is submitted to GEUS:
   a. Raw data.
      I. High and low frequency data with tidal and motion corrected navigation files.
      II. The instrument's tracktion lines can be submitted as shapefiles in line format. Reference to xtf file can be specified as an attribute.
      III. Sound Velocity Profile, (SVP).

   b. Processed data.
      I. Processed high and low frequency data should be delivered as GeoTIFF mosaics.
      II. Potentially supplemented with, for example, GIS, CAD, Petrel or Kingdom projects, if this is part of the deliverable.

1.5. Section 10 Electromagnetic surveys

This includes combined electromagnetic measurements (Controlled Source Electromagnetics, CSEM), magnetotellurics (MT), Transient Electromagnetic Method (TEM), etc.

The obligation to submit information includes all data and reports that are a regular part of the acquisition and processing process and which are held by the licenseholder.

Electromagnetic surveys are divided into:

1.5.1. Combined electromagnetic measurements (CSEM).
1.5.2. Magnetotelleric (MT), Transient Electromagnetic Method (TEM) data and similar electromagnetic surveys.
1.5.3. Georadar.

1.5.1 Combined electromagnetic measurements (CSEM)

1) Within 6 months of data collection, the following information is submitted to GEUS:
   a. Raw data should be submitted in ASCII/xyz format.
   b. 2D track lines / 3D grid should be submitted in UKOOA format and shapes in line format.
   c. The CSEM resistivity model (numerical inversion) can be submitted in ASCII/xyz format.

1.5.2 Magnetotelluric (MT), Transient Electromagnetic Method (TEM) data and corresponding electromagnetic measurements

1) Within 6 months of data collection, the following information is submitted to GEUS:
   a. Raw data should be submitted in ASCII/xyz format.
   b. 2D track lines / 3D grid should be submitted in UKOOA format and shapefiles in line format.
   c. MT resistivity model (numerical inversion) should be submitted in ASCII/xyz format.

1.5.3 Georadar

1) Within 6 months of data acquisition, the following information is submitted to GEUS:
   a. Raw data and related navigation data (raw and processed data).
      I. Raw data should be provided in the SEG-Y standard format, and headers should be filled in based on the applicable SEG-Y standards.
      II. Navigation data should be provided in a standard format, such as .csv or .txt.

   b. Shot point data should be provided as a shape file.

   c. Processed data.
      I. Copy of all products delivered to the operator according to processing reports and work programme. EBCDIC, binary and trace header should be completed according to the applicable SEG-Y standards. If relevant, supplemented with e.g. GIS, CAD, Petrel or Kingdom projects if this is part of the deliverable.

1.6. § 10 Other types of geophysical data

All information and reports from other types of collected geophysical data are to be submitted in accordance with the general rules set out in the Executive Order and these guidelines. For specific guidelines regarding data that are not included herein, please contact the Danish Energy Agency: invindingsekr@ens.dk

2. Section 11 Geotechnical surveys

This includes cone penetration tests (CPTs, regular and seismic), vibro cores, and soil samples, etc.

The obligation to submit information includes all physical samples, data and reports that are a regular part of acquisition and processing processes and which are held by the licenseholder.

1) Within 6 months of data collection, the following information is submitted to GEUS:
   a. Cone penetration test data. Including tip resistance, side friction and pore pressure, which should be delivered in csv-format or the like.
   b. Cores. See section 4.3 for guidelines on how to submit data.
   c. Soil samples. See section 4.3 for guidelines on how to submit data.
   d. Data collection and interpretation reports, including laboratory analysis reports.
      I. See 'General guidelines' for general requirements for reporting.

3. Section 12 Geochemical surveys.

Including samples of rock and formation fluid and the results of their analyses. The measurement method used shall be indicated.

Geochemical analyses typically include the description of the mineralogy of the rock samples, such as content of quartz, calcite, feldspars, kaolinite, etc., as well as analyses of the characteristics of the formation liquid, including:

- pH, alkalinity (HCO_{3-}),
- essential cations (Na, Ca, Mg, K, Fe, Si),
- essential anions (Cl, Br, SO_4),
- trace elements (e.g. Mn, Al, Ba, Li, Pb, Cu, Sr, Ni, Zn);
- gas/water ratio and
- gas composition (e.g. O_2, CO_2, CH_4, N_2, Ar, He, $H_{2,}$). Mud gas logs should be submitted in PDF and in spreadsheet formats.

In addition, the following organic geochemical studies are typically performed:

- Mud gas type and concentration, including biogenic gas, thermogenic gas and total gas.
- Isotubes including composition. Only analysis results are submitted, not a physical sample.
- Composition of hydrocarbons where information is available.
- Cutting samples from reservoir and seal.
- Total Organic Carbon (TOC)/Rock-Eval (in relation to maturity, etc.)

Other recommended information may be the particle composition, the weight of material on the filter as well as the content of the main components, e.g. Si, Al, Fe, Mg, Ca and Na, isotopes, dissolved oil components, etc.

The obligation to submit information includes all data and reports that are a regular part of collection and processing processes and which are held by the licenseholder.

1) Within 6 months of data collection, the following shall be submitted to GEUS:

   a. Raw data. Must contain information on the sampling, including indication of the coordinates of the welllbore, depth of sampling, date of sampling and geodetic reference system used. If a digital elevation model is used, please state which.

   b. Test data. Raw and processed data. These should be submitted in spreadsheet format with measurement points in rows and measurement parameters in columns as well as line header information. Raw, processed and final data should be entered in one worksheet.
   In this, there shall also be specified metadata describing the following:
      - how the sample was taken and why/in connection to what;
      - whether certain circumstances have caused errors in the

analysis;
- an assessment of whether the samples are usable.

4. Sections 13-15 Information on and samples from wellbores.

The following applies to all drilling operations covered by permits granted under the Subsoil Act and includes information collected during the drilling process as well as information collected during, for example, subsequent monitoring. This includes surface or "medium-deep" drilling operations approved in connection with a permit granted under the Subsoil Act. Please note that data, samples and confidentiality in this Executive Order are handled differently from 'Brøndborerbekendtgørelsen'.[2)]

4.1. Section 13 Daily reporting

During the drilling operations, daily reports are submitted to the Danish Energy Agency and GEUS. Reports are to be sent by email to:

- Danish Energy Agency: ddr@ens.dk
- GEUS: geus@geus.dk

Reporting on the last 24 hours should be the Danish Energy Agency and GEUS in hand by 11:00 a.m. at the latest. Reports should follow industry standards. See the list of contents for daily reports in Annex B.

Guidelines for the contents of the daily drilling reports for land drilling are provided in the Danish Energy Agency's 'Guidelines for drilling and well operations on land Denmark 2024'[3)].

Guidelines for the content of the daily reports for offshore drilling are provided in the Danish Working Environment Authority's Management Executive Order ('Styringsbekendtgørelsen')[(4)].

4.2. Sections 14 and 15 Final reporting

For drilling operations, the following information is to be submitted to the Danish Energy Agency and GEUS:

1) Deviation survey.
2) Final well report (FWR) submitted within 6 months after the end of the drilling. See the content list for FWR in Annex C.
3) Interpretation reports shall be submitted as soon as they are available.

Within six months of the drilling operations, the following information, if collected or prepared, as referred to in Section 14(1), shall be submitted to GEUS:

1) Measurements in the wellbore such as petrophysical logs, caliper logs and formation pressure data.

These should include metadata describing the following:
- how the sample was taken and in why/in connection with what;
- whether certain circumstances have caused errors in the analysis, as well as an assessment of whether the samples are usable.
-

2) Visual measurements such as image logs and similar. Processed Composite log and CPI log, if these exist.
3) Seismic measurements in the wellbore such as Vertical Seismic Profile and the like.
4) Formation strength measurements, including formation integrity test (FIT), leak off test (LOT), extended leak off test (XLOT), modular formation dynamics test (MDT*)*, etc.
5) Temperature measurements carried out along the well trajectory in connection with the production test of the well. Used for calculating the geothermal gradient and should be provided in spreadsheet

format.

6) Pressure and flow measurements (production test measurements), including:
   a. Bottom hole pressure, static and initial, which should be delivered in spreadsheet format.
   b. Surface flow rate, injection or production, as a function over time. Should be delivered in spreadsheet format. The test report from the contractor should also be submitted.
   c. Pressure, as a function of time, for bottom hole and wellhead. Should be delivered in spreadsheet format. The test report from the contractor should also be submitted.
   d. Interference test (if possible - requires multiple wells). Should be delivered in spreadsheet format. The test report from the contractor should also be submitted.
   e. Production test with spinner. Should be delivered in spreadsheet format. The test report from the contractor should also be submitted.
7. Data and results of all analyses carried out, including petrophysical interpretations.

8. Research and data acquisition reports, production test reports, etc., including:
   a. Stratigraphic, sedimentological and paleontological surveys.
   b. Core descriptions and photos.
   c. Results from measurements and analyses of core material.
   d. Qualitative and quantitative analysis of formation fluids.
   e. Pressure, volume and temperature ratios for any potential hydrocarbons.
   f. Source rock analyses.
   g. Raw data and processing results from the well test.
   h. A summary of the main conclusions for all well tests performed should be submitted no later than 6 months after the operations are concluded.

Within 1 year after the completion of the drilling operation, the following information, if collected or compiled, shall be submitted to GEUS pursuant to Section 15(2).

1) Cuttings: A set of washed and dried samples and a set of wet samples. These samples shall be taken at the same intervals as the samples collected for the licenseholder's own use.
2) Drilling fluid: In exploratory drilling, samples shall be taken whenever a qualitative change in the additives happens and before the production test, but at least for every 300 m drilled. Sample quantities and packaging are to be aligned with GEUS' core storage beforehand.
3) Sidewall cores: If sidewall cores are sampled, the remaining core material shall be deposited at GEUS within 1 year of the completion of the drilling operation. It shall be ensured that the quantity of remaining core material is sufficient to enable lithological and petrographic assessment, as well a as clay mineral, micropaleontological and palynological analysis.
4) Formation fluid samples: If pressurised samples of reservoir fluids and gases are part of the approved data collection programme, sample quantities and packaging should be aligned with GEUS' core storage beforehand.
5) Core, core samples, core descriptions and core photos: Core material, including side wall cores, shall be submitted to GEUS core storage within 1 year after the completion of the drilling operation.
6) Biostratigraphic samples. If biostratigraphic interpretations have been performed, these shall include fossil zone, fossil assemblage and specification of guide fossils. Interpretations should include distribution charts. Physical samples such as paleontological and palynological slides shall be labelled with the well name and, if applicable, field or geological structure, depth of sampling, operator, biostratigraphic group, date and name of the laboratory technician.

7) Thin sections. If thin sections are prepared, these must be marked with the well name and the depth of the sample in metres. The thickness of thin sections shall be indicated if deviating from standard (30 µm), including any potential staining for identification of specific minerals. Written descriptions should be accompanied by photographic documentation. Quantification of mineral composition from thin sections by point counts, automated quantitative mineralogy (AQM) or other methods are to be reported in spreadsheets.

4.3. Requirements for submission of cores, side-wall cores and formation fluid and gas samples

To ensure compliance with GEUS standards and filing procedures, it is recommended that the following checklist is followed when submitting cores, side wall cores and formation fluid samples.

1. **Before submission**, it shall be ensured that the drilling ID, geographical location of the well, core intervals and other samples collected in the well should comply with GEUS standards. When submitting cores and samples, the official name of the well and any potential segments, as agreed with the Danish Energy Agency, shall be used.

Before submission, please notify GEUS of the upcoming delivery. The permit[5)] under which data is collected is to be specified together with the name and e-mail address of the operator and sent by e-mail to: corestore@geus,dk and copy to: info-data@geus.dk.

2. **Requirements for packaging:** Materials suitable for long-term storage and safe handling shall be used. If the delivery is placed on pallets, it shall be ensured that these are standard pallets without any modifications.
3. **Labelling requirements:** All boxes and containers shall be marked with clear well ID, depth and direction indicators.
4. **Preservation of cores:** Apply the required preservation technique for entire core sections. A digital list of the section number, depth and metadata e.g. well name should accompany the preserved sections of cores. Ideally, the preserved sections should comprise ~10% of the full core length. Contact GEUS for further guidance on required preservation techniques.
5. **Handling of cores:** Cores should be cut into 2/3rds. Sections for visual analysis are to be embedded in epoxy.
6. **Core samples for analysis:** All samples of the core, e.g. plugs, shall be registered and submitted with the core or after completion of analysis, but not later than 1 year after sampling, pursuant to Section 3(3) of the Executive Order.
7. **Geotechnical samples:** For geotechnical core samples, the entire core recovered or unconsolidated drilling sample shall be submitted packaged in materials suitable for long-term storage and safe handling.
8. **Formation fluid and gas samples:** All formation fluid and gas samples shall be registered with packaging information and 'down hole conditions' if the samples are taken during a well test or similar activity.
9. **Management of sidewall cores:** All sidewall cores are to be registered (e.g. plugs) and submitted with the core.
10. **Temperature control:** If requirements for a specific temperature condition during transport and storage are set, these must be complied with.
11. **Safety during transport:** Follow safe handling procedures during transport to avoid damage to the sample material.
12. **Receipt:** For deliveries to GEUS, a written receipt is mandatory. To arrange this, please contact GEUS mailbox: corestore@geus.dk and cc to: info-data@geus.dk. A letter of transmittal shall be attached to the delivery. The letter of transmittal should contain a detailed list of all the cores and samples supplied. This includes information on: Type of material, well name or sample ID, depth interval, etc. In addition, the permit [6)] under which data is collected shall be entered together with the name and e-mail address of the operator. It should also indicate how many collies are sent.
13. **Delivery address:**

GEUS Kernelager
Hørsvinget 1
2630 Tåstrup
Denmark

DELIVERABLES & CONTACT INFORMATION

Deliverables

All reports and data shall be delivered to the following address:

GEUS
Rigensgade 13
1316 Copenhagen K.
Denmark
Attn: Marianne M. Hansen

The cores and test material shall be delivered to the following address:

GEUS Kernelager
Hørsvinget 1
2630 Tåstrup
Denmark
Attn: Mr Jesper D.
Nielsen

All shipments shall be sent in durable packaging.

All submissions shall include a letter of transmittal with detailed information about each unit in the shipment and metadata including:

- Name of survey or well.
- Exploration and extraction permit number [(7)] or attached permit for pre-investigations [(8)].

All units shall be easily identifiable by name or number when compared with a letter of transmittal or data delivery list.

If the shipment contains data or reporting that replaces previously submitted material, this shall be clearly stated in the letter of transmittal.

Contact

The subsoil archive in GEUS' geological data centre is responsible for archiving all data and reports described above. For questions on data types, formats, media and similar, please contact GEUS at: info-data@geus.dk.

For questions on cores, please contact GEUS via:

E-mail: corestore@geus.dk.

For general questions regarding these guidelines, please contact the Danish Energy Agency.

For questions on permits for storage of CO_2 and feasibility studies for this purpose, contact the Danish Energy Agency at:

ccs-lagring@ens.dk.

Regarding questions relating to permits for the extraction and exploration of hydrocarbons, salt, geothermal and other resources regulated by the Subsoil Act and pre-investigations for this purpose, contact the Danish Energy Agency at:

invindingsekr@ens.dk.

REVISION HISTORY

The guidelines are reviewed annually. In the event of changes and updates, a new revision of the guidelines will be published.

The table below shows historical revisions of these guidelines and the changes made. The

current guidelines can be found here: insert-link-to-current-revision.

Revision No.	**Change**	**Date**
Rev. 1.0	No previous revisions.	1 July 2025

Danish Energy Agency, 10 September 2025

Peter Christian Baggesgaard Hansen

/ Anne Sofie Sandbech

[1] Executive Order on the Use of the Danish Subsoil, Consolidating Act no. 1461 of 29 November 2023.
[2] Executive Order no. 1260 of 28 October 2013 on the construction and winding of drills and wells on land.
[3] 'Guidelines for drilling and well operations on land Denmark 2024' can be found at ens.dk/en/energy-sources/legislation-and-guidelines.
[4] Executive Order no. 1042 of 8 July 2023 on the management of safety and health, etc. in connection with offshore oil and gas activities.
[5] The exclusive rights permit under the Subsoil Act for exploration and acquisition or storage under which data is collected.
[6] The exclusive rights permit pursuant to the Subsoil Act for the investigation and acquisition or storage under which data is collected or, alternatively, the permit for the feasibility study.
[7] Pursuant to Section 5 or 23 of the Subsoil Act.
[8] Pursuant to Section 3 of the Subsoil Act.

Annex A

Formats and media recommended for submitting data, information and physical samples.

Geophysical data

Data	Format	Media	Comments
Seismic data, field	SEG-D rev. 3.0 or 3.1	IBM3592 (for drive TS1120 or TS1140 or TS1150)	Data should be provided on tape for long-term storage. Other tape formats are also acceptable if IBM3592 is not possible. Contact GEUS to arrange.
Seismic data, processing	SEG-Y rev. 1.0 or 2.0	IBM3592 (for drive TS1120 or TS1140 or TS1150), alternatively on external hard drive	
Navigation data, processing	UKOOA P1/90 or OGP P1/11	IBM3592 (for drive TS1120 or TS1140), Alternatively on external hard drive	
Navigation data, raw	UKOOA P2/94 or OGP P2/11	IBM3592 (for drive TS1120 or TS1140 or TS1150), alternatively on external hard drive	
Bin grid data	UKOOA P6/98 or OGP P6/11	IBM3592 (for drive TS1120 or TS1140 or TS1150), alternatively on external hard drive	
Velocity data	EssoV2 or SEG-Y rev. 1.0 or 2.0	IBM3592 (for drive TS1120 or TS1140 or TS1150), alternatively on external hard drive	
Seismic data, shallow	Industry standard	IBM3592 (for drive TS1120 or TS1140 or TS1150), alternatively on external hard drive	
Bathymetry	Industry standard	IBM3592 (for drive TS1120 or TS1140 or TS1150), alternatively on external hard drive	
Geochemical data	Industry standard	External hard drive	
Gravity surveys	Industry standard, ASCII,	External hard drive	

	xyz		
Magnetic surveys	Industry standard	External hard drive	
CSEM data	Industry standard	External hard drive	

Drilling data

Data	Format	Media
Digital log data (raw data)	LIS/DLIS/LAS	External
Logs (Plots)	PDF/A (preferably) or PDF and TIFF (TIFF ver. 6.0 baseline, 400 dpi preferred) CGM if these are produced	External hard drive
Seismic data (VSP or equivalent)	SEG-Y/ASCII	External hard drive

Reports

Data	Format	Media
Observers' logs	PDF/A (preferably), PDF or Excel	External hard drive
Weekly reports	Email to info-data@geus.dk	
Other logs	PDF/A (preferably), PDF or Excel	External hard drive
Seismic acquisition report	PDF/A (preferably) or PDF	External hard drive
Seismic processing report	PDF/A (preferably) or PDF	External hard drive
Other reports (QC, navigation, etc.)	PDF/A (preferably) or PDF and hard copy	External hard drive
Gravity survey acquisition and processing report	PDF/A (preferably) or PDF	External hard drive
Magnetic survey acquisition and processing report	PDF/A (preferably) or PDF	External hard drive
CSEM Report	PDF/A (preferably) or PDF	External hard drive
Reports from tother well acitivities (incl. VSP)	PDF/A (preferably) or PDF	External hard drive

Industry standards

When using standard formats such as SEG-D, SEG-Y, UKOOA, OGP etc., it is essential to follow the specific standard guidelines for these formats. The official standards can be found here:

SEG-D

http://seg.org/Publications/SEG-Technical-Standards.

SEGY

http://seg.org/Publications/SEG-Technical-Standards.

The SEG-Y EBCDIC header should include all information as proposed in the official standard, including information on the datum and zone of the coordinates.

UKOOA

The official description of the older UKOOA standards can be found here: http://www.iogp.org/geomatics/#geophysical-operations.

UKOOA formats are no longer updated. The current formats for positioning are OGP.

OGP

The official description of the OGP positioning standards can be found here: http://www.iogp.org/geomatics/#geophysical-operations.

Media specifications

Below is a detailed description of which data medium is to be used when data is submitted to GEUS. If it is not possible to follow the instructions below please contact GEUS for alternatives.

General information

- All media shall have a label that clearly indicates what data the media contains.
- If a medium is used that can be formatted with different capacity/ to different type of tape drive, this information shall be evident from the label.

Data delivered on tape should meet one of the following requirements for type of tape:

- IBM3592-JD (preferably) readable on a TS1150 (E08) tape drive, alternatively
- IBM3592-JC readable on a TS1140 (E07) tape drive,
- IBM3592-JB readable on a TS1140 (E07) tape drive,
- IBM3592-JB readable on a TS1120 (E05) tape drive, or
- IBM3592-JA readable on a TS1120 (E05) tape drive.

Annex B

Daily drilling reports

The daily reports, which may be submitted either as a single daily report or divided into daily geological and drilling reports, shall contain the following:

1. Date and time of the report.
2. Well name.
3. The geographical coordinates.
4. The well's UTM coordinates (incl. reference system/date & zone).
5. Water depth or elevation.
6. Name of drilling rig + location (indicated with coordinates, as well as field if this is relevant).
7. Name of the drilling contractor.
8. Name of operator.
9. Report number and reference to the number of the corresponding daily drilling or geological report.
10. Total number of days accumulated for the operation.
11. Daily cost of drilling activities and accumulated cost to day date.
12 License holder.
13 Name and number of the permit.
14. Well type (e.g. deviated appraisal well).
15. The objectives of the well.
16. The rig's depth references:
    - Offshore: Rotary Table (RT) – Mean Sea Level, MSL.
    - Onshore: Rotary Table (RT) – Ground Level, GL.
17. Depth and activity at reporting time (e.g. 06:00) (both MDRT & TVDRT).
18. Depth at the report end time (24:00) (both MDRT &TVDRT).
19. Progress in the last 24 hours.
20. Current hole diameter and bit type.
21. Description of the drill string components.
22. Depth and size of last casing/liner shoes with possible cementing.
23. Name of the geological unit drilled at 24:00 hours.
24. Drilling speed and circulation time in the encountered units.
25. Mud weight, including information on any potential losses.
26. Mud type (e.g. OBM, WBM, brine).
27. Latest information for deviation survey (Depth, MDRT, TVDRT, including azimuth and inclination).
28. Summary of the last 24 hours of activity (from the summary in the daily drilling report).
29. Summary of plan for the next 24 hours.
30. Description of activities in the last 24 hours related to the drilling operation with details on hourly basis with significant results and any operational problems.
31. Table of information on encountered geological units:
    - Well interval (MDRT), formation name, lithology, (if relevant) core descriptions, information on the estimated geological age of the encountered units, including biostratigraphic interpretations, if any, and a general description.
32. Table with information on shows (include only if relevant):
    - Well interval (MDRT), formation name, stain, fluorescence, cut (UV & natural, comments to this).
33. Table with information on gas peaks (include only if relevant):

- Well interval, gas type (drilled gas, trip gas, etc.), total gas (%), background gas, gas peaks, chromatography (C1, C2, C3 etc.), remarks (including H2S observations).

34. Table with information on samples of formation water, in situ pressure measurements, temperature, coring, etc.
35. Formation strength test (Leak-Off Test (LOT) or Formation Integrity Test (FIT)) and derived value of maximum acceptable surface pressure with current mud weight (MAASP).
36. Remarks regarding the stability of the well or the influx of gases or liquids (cavings, kicks, losses, caliper data).
37. Stratigraphic prognosis related to actual drilled stratigraphy:
    - Formation tops, expected depth (MDRT & TVDRT) related to current depth (high/low), formation thickness, remarks.
38. Logging:
    - LWD/MWD & summary of performed wire line logging including applied logging instruments. If no logging has been performed, specify this.
39. Meteorological data including wind speed and direction, wave height and direction (offshore).
40. Date of last BOP test.
41. Comments during the reporting period for any safety incidents and planned drills.
42. General remarks.
43. Name and title of the report's author – typically the drill site geologist.

Annex C

Final Well Report

The final reporting on the well, including slot recovery and side tracks, applies to all types of wells. For exploration and appraisal wells being permanently abandoned as a part of the drilling programme, the final well report shall also include information on the abandonment programme. The report shall contain the following information:

1. Basic well data, including:
   a. Well name.
   b. Well location in geographic and UTM coordinates, as well as indicated on a map. For development wells, a slot chart is to be included.
   c. Type and objectives of the well.
   d. Water depth or elevation.
   e. Operator.
   f. Drilling contractor.
   g. Name of drilling rig used, date of rig arrival, date of rig departure, date of spudding, date of completion of the drilling operations.
   h. Total depth (indicated in vertical depth (TVDRT) and measured along the well track (MDRT)) with specification of geological age.

2. Summary of the drilling process, including:
   a. Description of any technical problems and assessment hereof per section.
   b. Indication of bits used (size and type), components of the drill string (BHA) and mud (weight and type).
   c. Indication of the period of time of the drilling operations.
   d. Total duration of the operations including non-productive time.
   e. Cost distribution.
   f. Time vs. depth curve and time vs. cost curve.
   g. HSE statistics, including registered incidents, near-misses, first aid cases, spills, etc.
   h. Summary of the overall lessons learned and challenges for each section of the well.

3. Summary of geological information obtained during the drilling, including:
   a. Summary of data acquisition for each well section, including geophysical logs, cores, fluid samples, formation strength tests, etc.
   b. Composite log of the results of the drilling fluid analysis performed during the operations.
   c. Lithostratigraphic summary.
   d. Biostratigraphic summary, if done.

4. Detailed description of the final well, including:
   a. Schematic representation of the status of the well at completion.
   b. Details of the casing and cement.
   c. Completion diagram of production pipe, production packers, safety valve, and other elements of the production pipe.
   d. If applicable, description of stimulation or similar production-related technical preparation of

the well.

e. Schematic of well barriers and verification of each individual barrier element.

f. Schematic of wellhead and x-mas tree.

g. Description of any side tracks.

5. A composite log of the measurements performed such as coring intervals and well production test intervals, casings and their cementation, cement plugs, lithology and primary logs.

6. Report on deviation survey, including well trajectory plots and assessment of uncertainty.

7. Final reports from subcontractors, including mud logging, cementing, drilling fluids and production tests, are to be attached as separate documents.