



Authority proces in connection with the permanent plugging of wells

Background note on regulatory approval in connection with the permanent plugging of oil and gas wells

Pursuant to the EU Methane Regulation, which entered into force on 4 August 2024, the competent authorities (in Denmark: the Danish Energy Agency) shall establish and make publicly available an inventory of all inactive wells, temporarily closed wells and permanently plugged and abandoned wells under their jurisdiction by 5 August 2025. That inventory shall include information on how the competent authorities have ensured that the wells are properly and permanently plugged.

History

In Denmark drilling for oil and gas on land has taken place from 1935 to 2015 and offshore since 1966. The drilling has been carried out partly for exploration and partly for production purposes.

The first gas discoveries in Denmark were made in 1865 and 1872, respectively, when gas was encountered while digging a water well. In 1905, the Geological Survey of Denmark (now GEUS) discovered gas in a test well, however the discovery was found to be of no commercial value.

During the 1930s, some private households began using natural gas from local shallow gas deposits, and several discoveries in Vendsyssel were thus utilised for local consumption in the 1930s and 1940s.

In 1931, the Geological Survey of Denmark pointed out to the Prime Minister's Office that there seemed to be an increasing interest from private capital companies in the exploitation of underground deposits, which contributed to the first Danish Subsoil Act being passed in Denmark in 1932.

The first exploration activities on land within the framework of exclusive licences granted under the Danish Subsoil Act took place between 1935 and 1937, and exploration wells were drilled until 2015 without making commercial discoveries.

Offshore in the North Sea, exploration drilling began in 1966 and several discoveries were made that were deemed commercially exploitable leading to the development of the North Sea fields with production wells and production of oil and gas. All production fields are located in the current oil-gas area west of 6°15' east longitude in the North Sea.

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Energistyrelsen

Carsten Niebuhrs Gade 43
1577 København V

T: +45 3392 6700
E: ens@ens.dk

www.ens.dk



Legislation, authority responsibilities and approval procedures

1932-1949

The 1932 Subsoil Act, which was effectively an act on raw materials, established the state's ownership of all raw material deposits not already being exploited by Danish citizens and had as its foundation the sound and appropriate utilization of these resources. The act established that the state may grant concessions for the exploration and extraction in order to secure the significant capital investment that this normally required.

Authority under the Subsoil Act was transferred from the Prime Minister's Office to the Ministry of Public Works in 1942.

1950 - 1980

The 1950 Subsoil Act, much like the 1932 Act, was a brief framework law that built on the same principles as the 1932 act, including that the state may grant concessions / licenses for the exploration and extraction and set conditions for this.

Under the Minister of Public Works, the Geological Survey of Denmark exercised authority over drilling activities in accordance with Section 3 of the Act:

"Anyone who, pursuant to this Act, has a deep drilling carried out must submit to the "Geological Survey of Denmark" a notification of the location of the drilling, the thickness and nature of the soil or rock layers drilled through, and the raw materials found, as well as samples of the soil and rock layers and of the raw materials. Before drilling commences, notification of this must be submitted so that the "Geological Survey of Denmark" can exercise control over the drilling during its execution."

In 1976, the Danish Energy Agency was established pursuant to the Energy Policy Measures Act under the jurisdiction of the Minister of Trade. Pursuant to the Executive Order on the Danish Energy Agency, the agency was given the authority to, among other things, issue approvals for drilling.

1981-2014

With the 1981 Subsoil Act, which was under the jurisdiction of the Minister of Energy, drilling approvals became more specified. The Danish Energy Agency supervised wells and was authorised to approve the drilling of wells, cf. Section 28 of the act:

"Work carried out in connection with activities covered by this Act, including drilling, sinking of shafts and insertion of tunnels, may only be undertaken if the Minister of



Energy's approval of the equipment, program and method of execution has been obtained in each individual case."

Subsequent amendments to the Subsoil Act have all maintained that the authorities shall approve equipment, programs and execution methods for work on individual wells, including work relating to the permanently plugging of wells. Such approvals will include both resource and safety considerations.

2015-

The 2013 Offshore Safety Directive established that operators shall operate under a concession or license from an independent authority in order to carry out oil and gas activities. To prevent conflicts of interest, the Directive also stipulated that EU Member States shall ensure a clear separation between the regulation of offshore safety and environmental matters and all other matters relating to the economic development, licensing and revenue management.

The directive led to amendments to the Subsoil Act and the Offshore Safety Act, by, among other things, placing the authority to approve well work with the Danish Energy Agency for regard to resource-related matters, and by placing safety matters with the Danish Working Environment Authority. Accordingly, both authorities shall approve well work, including well work relating to the permanently plugging of wells, within their respective areas of responsibility.

More about the process for supervision and approval of well work

From 1950 onwards, there has been a regulatory responsibility for the supervision of drilling and well work, which in the previous period was under the Geological Survey of Denmark.

Since 1976, the Danish Energy Agency has assumed the regulatory responsibility (from 2015, the Danish Working Environment Authority with regard to safety issues, including in relation to major accident risks, safety and integrity in wells, personal safety, environmentally critical elements, etc.) for supervision of well work, which has been handled by an internal "drilling group" based on, among other things, "good practice" and later i.a. NORSOK standards. Guidance for the operators has been provided, among other things, in accordance with the Drilling Guidelines of 1988.

The Danish Energy Agency approves permanent plugging of exploration and appraisal wells as well as production and injection wells after use in accordance with Sections 10 and 28 of the Subsoil Act, and the specific work that needs to be carried out to properly plug a well may not commence before the Danish Energy Agency's approval has been obtained. The Danish Energy Agency approves both the plugging work and the subsequent abandonment.



The process for approving well work including plugging work and supervision of its execution will typically look as follows:

- The operator notifies the Danish Energy Agency and the Danish Working Environment Authority of its plan to permanently plug a well and submits all material and documentation, including so-called programs for the intended plugging work, together with a formal application. Sometimes the abandonment program is included in this application and sometimes it will be a separate application.
- Processing of the application for permanently plugging and abandonment of a well is initiated based on the submitted information and any additional information from the operator.
- The Danish Energy Agency issues an approval of the equipment, programme and method of execution for the permanently plugging and abandonment of the wells and any additional conditions related thereto.
- During well work, the operator submits daily drilling reports for the work to the Danish Energy Agency and the Danish Working Environment Authority, which use these as a basis for supervision of the work, including checking that the work is carried out in accordance with the approval.
- In the event of necessary changes to the approved drilling program, e.g. as a result of incidents during the work, the operator shall notify the Danish Energy Agency and the Danish Working Environment Authority that they wish to change the relevant element of the drilling program. The Danish Energy Agency and the Danish Working Environment Authority will process such a change request and either accept it or issue additional approval for the changed drilling program.
- When the permanent plugging and abandonment of the well has been completed, the operator submits a final report with documentation for the well ('Final Well Reporting') to the Danish Energy Agency and the Danish Working Environment Authority.

The required list of all inactive wells, temporarily plugged wells and permanently plugged and abandoned wells, which Denmark establishes, makes publicly available and keep up to date under the Methane Regulation, contains information listed in Annex V, Part 1, to the Regulation, which includes, information on how the authority has attested that the wells are properly permanently plugged. This is indicated in the well list by the date of approval of the permanent plugging program and the date of receipt of the Final Well Reporting.



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