



Council Directive
2009/71/EURATOM of
25 June 2009 on Nuclear Safety

2014

FIRST REPORT FROM DENMARK

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First National Report from Denmark - Council Directive 2009/71/EURATOM of 25 June 2009 on nuclear safety

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URL: <http://www.sis.dk>

Key words: Nuclear safety, European Directive, National report

Language: English

Kategori: Udredning

Version: 1.0

Version date: 16 07 2014

Format: pdf

Cover Photo: Preparatory work for the lifting of the Top Shielding Plug (TSP) on the 10 MW research reactor (DR 3) at Risø, Danish Decommissioning, May 2014

Published by Danish Health and Medicines Authority, 2014

ISBN online: 978-87-7104-038-8

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A Introduction

No nuclear installations covered by the Nuclear Safety Directive are under construction or in operation in Denmark. In 1985, the Danish Parliament made the decision that Denmark would not utilize nuclear energy as part of the future energy supply. In 2003, the Danish Parliament agreed to the costs and the general decommissioning approach for all the nuclear installations at Risø, with the objective to decommission all nuclear facilities at Risø as soon as possible within a timeframe of 20 years. When the decommissioning of nuclear installations has been completed, no later than 2023, Denmark will not have nuclear installations covered by the Nuclear Safety Directive. Danish nuclear installations under decommissioning are shown in table 1. The Waste Management Plant at Risø is at present operating in direct relation to the decommissioning activities by providing decontamination, handling and storage facilities and as such is covered by the Nuclear Safety Directive.

Table 1. Nuclear installations under decommissioning (updated May 2014).

Nuclear installation	Type	Taken out of operation	Decommissioning status?	Covered by NSD
DR 1	Small homogeneous 2 kW reactor mainly used for educational purposes	2001	Fully decommissioned and released from regulatory control in 2006.	No
DR 2	5 MW research reactor of the open pool type	1975	Reactor fully decommissioned, but the building is used for storage and handling of waste objects prior to final release from regulatory control.	No
DR 3	10 MW heavy water research reactor of the PLUTO type	2000	Fuel elements removed. Method of dismantling selected. Final decommissioning plan approved by the Regulatory Authorities. Secondary cooling system and structures fully dismantled. Decommissioning of peripheral systems completed and dismantling of reactor inner parts initiated.	Yes
Hot Cells	Facility for post irradiation investigations of nuclear fuel	1989	The decommissioning plan was approved by the authorities in spring 2008 and characterization of contamination and removal of "hotspots" was carried out in summer 2010.	Yes
Fuel fabrication	Fuel fabrication facilities for DR 2 and DR 3	2002	Decommissioning to »green field« is in progress. Equipment removed. Certain contamination and radiation risk zones down-graded.	Yes

This report is prepared by the National Institute of Radiation Protection (NIRH) under the Danish Health and Medicines Authority, in co-operation with the Nuclear Division of the Danish Emergency Management Agency (DEMA) and Danish Decommissioning (DD).

B Reporting article by article

Article 4 – Legislative, regulatory and organisational framework

The present Danish legislative, regulatory and organisational framework for nuclear safety is based on:

- Act No. 170 of 16 May 1962 on Nuclear Installations.
- Circular Letter of 21 December 2011 from the Minister of Health and Prevention to the Nuclear Regulatory Authorities.

The framework is based on legislation which today would be insufficient for the construction and operation of nuclear installations covered by the Directive. However, the framework is considered to be sufficient for the present decommissioning activities of the old research reactors and related facilities. With the present work program, the decommissioning activities are expected to reach green field status in 2023, at the latest.

Under the Nuclear Installations Act, construction and operation of nuclear installations are subject to authorisation from the Minister of Health and Prevention. In addition to the general license to the operator responsible for the decommissioning of the nuclear installations at Risø (Danish Decommissioning, an institution under the Ministry of Higher Education and Science), the Nuclear Regulatory Authorities have issued Operational Limits and Conditions for the nuclear installations at Risø. The Operational Limits and Conditions are formulated in accordance with other relevant Danish legislation, e.g. the Danish Health and Medicines Authority Order (1997) on dose limits for ionising radiation. The stated Operational Limits and Conditions furthermore closely follow the IAEA safety standards on decommissioning, as well as the clearance levels recommended by the EU and the IAEA.

The Circular Letter stipulates that the purpose of regulatory control imposed by the Nuclear Installations Act and other Acts on Radiation Protection is; to ensure that licence holders fulfil their obligations to demonstrate that construction and operation is performed using undoubtedly sufficient resources, in regards to human, competence and economical aspects. In addition, the Act must ensure continuing education and other necessary information of any person who has an impact on the security and safety conditions of nuclear installations, and furthermore ensure procedures and measures to maintain the optimum safety of the nuclear installation, to demonstrate the effective operation and appropriate quality of the facility and its equipment, and finally, to continually assess and improve the nuclear safety in a systematic and verifiable manner.

Article 5 – Competent regulatory authority

The responsibilities of the Nuclear Regulatory Authorities (National Institute of Radiation Protection under the Danish Health and Medicines Authority and the Nuclear Division of the Danish Emergency Management Agency) in relation to domestic nuclear installations are defined in Act No. 170 of 16 May 1962 on Nuclear Installations. In addition, Act No. 244 of 12 May 1976 on Nuclear Installation Safety and Environmental Impacts (partially enacted) defines the Nuclear Division's obligations in relation to international cooperation on nuclear safety. According to the first Act, nuclear installations are subject to inspection from the Nuclear Regulatory Authorities, which are empowered to have direct access at any time to all premises, buildings etc. for inspection purposes and to withdraw licenses and suspend operations in cases where nuclear safety or security cannot be demonstrated. Further, it is the responsibility for the Nuclear Regulatory Authorities to initiate legal action, should a breach of law become known to the authorities.

In matters of domestic nuclear safety, the Nuclear Regulatory Authorities refer to the Minister of Health and Prevention but exercise regulatory functions and responsibilities under the Act of Nuclear Installations without undue influence. Administratively, the National Institute of Radiation Protection under the Danish Health and Medicines Authority is an agency under the Ministry of Health and Prevention while the Nuclear Division of the Danish Emergency Management Agency is an agency under the Ministry of Defence. The operator responsible for the decommissioning of the nuclear installations at Risø is Danish Decommissioning, which is an institution under the Ministry of Higher Education and Science. This position of the Nuclear Regulatory Authorities in the Danish organisational and legal system ensures a functional separation from the operator with a primary responsibility for the safety of the Danish nuclear installations.

The Circular Letter of 21 December 2011 from the Minister of Health and Prevention to the Nuclear Regulatory Authorities stipulates that the Nuclear Regulatory Authorities every three years shall submit a progress report on nuclear safety to the Minister of Health and Prevention, who shall transmit the report to the Danish Parliament (Folketinget). The progress report shall include a status for and the development of nuclear safety in Denmark, including any circumstances giving rise to the need for changes in the Danish legislative, regulatory and organisational framework. If a circumstance occurring during the 3-year reporting period implies a need for an immediate change of the Danish framework, the Nuclear Regulatory Authorities shall inform the Minister of Health and Prevention accordingly.

Article 6 – Licence holders

Under Act No. 170 of 16 May 1962 on Nuclear Installations, construction and operation of nuclear installations are subject to authorisation from the Minister of Health and Prevention. The Act defines “the holder of a nuclear installation” as the person (legal or natural) authorized by the minister as the holder of the nuclear installation. A license includes responsibility for the safety of the licensed nuclear installation. The Operational Limits and Conditions for the nuclear installations at Risø issued by the Nuclear Regulatory Authorities to the licence holder (Danish Decommissioning), explicitly states (*Chapter 2 General conditions, Section 2.1 Responsibilities*):

Danish Decommissioning, represented by the Director (DD's management) shall, in due consideration of other relevant legislation, ensure that the decommissioning of the nuclear facilities at Risø is carried out in accordance with:

- *Operational Limits and Conditions for Danish Decommissioning*
- *Acts and Orders relating to radiation protection and nuclear safety.*

The contents of the Operational Limits and Conditions for Danish Decommissioning are given in Annex 1.

The Operational Limits and Conditions, stipulate that Danish Decommissioning is required to establish and maintain a quality management system that supports the decommissioning of nuclear installations in accordance with the requirements of the Nuclear Regulatory Authorities. This quality management system shall support and ensure efficient recording and documentation of all important issues regarding the decommissioning of the nuclear installations. The quality management system shall be certified according to ISO 9001.

Danish Decommissioning is an institution under the Ministry of Higher Education and Science and the financial resources for the decommissioning activities are ensured by the Danish Parliament (Folketinget) through the yearly adopted Finance Act and specific Finance Committee Documents.

Regarding human resources, Danish Decommissioning is through the Operational Limits and Conditions required to uphold the necessary qualitative and quantitative competences and resources for the safe conduct of the decommissioning activities.

Article 7 – Expertise and skills in nuclear safety

In addition to the requirements mentioned under Article 6, Danish Decommissioning, as licence holder, is required to comply with the following specific requirements regarding competences and training as stipulated in the Operational Limits and Conditions:

At any level in the organizational structure of nuclear safety and radiation protection staff must be qualified through education and training corresponding to the job description related responsibilities.

When hiring the director, chief of sections and project managers, the Nuclear Regulatory Authorities shall be given a summary of the qualifications of the selected candidate before transferral of responsibilities and powers associated with the position may take place.

Staff groups involved in the decommissioning of the nuclear facilities shall receive education and training in radiation protection.

Danish Decommissioning shall ensure that external consultants, contractors, etc. who are required to work on the dismantling of nuclear installations, are provided with a level of education prior to the commencement of works, that ensures a proper performance of all tasks in terms of nuclear safety and radiation protection.

The progress reports mentioned under Article 5 must include a statement on the inspection activities of the authorities, including a status of the resources, expertise and skills available.

Article 8 – Information to the public

The Circular Letter of 21 December 2011 from the Minister of Health and Prevention to the Nuclear Regulatory Authorities stipulates that the Nuclear Regulatory Authorities in cooperation with the licence holder, provide all relevant information of importance to nuclear safety at - and around - nuclear installations, to the public, taking into account security provisions.

On the web sites of the Nuclear Regulatory Authorities (National Institute of Radiation Protection: www.sis.dk, Danish Emergency Management Agency: www.brs.dk) information is provided regarding the Danish legislation on nuclear safety and radiation protection as well as the Operational Limits and Conditions issued to the licence holder, Danish Decommissioning.

On the web site of Danish Decommissioning (www.dekom.dk), a substantial number of reports etc. relevant to the decommissioning activities of the nuclear installation at Risø are presented.


In addition, the mentioned web sites also contain links to the General Data provided by Denmark in 2003 to the European Commission in accordance with Article 37 of the Euratom Treaty regarding the Decommissioning of the Nuclear Facilities at Risø as well as the Environmental Impact Assessment (EIA, in Danish; VVM) conducted in 2003 before the decommissioning activities were initiated.

Annex 2 provides examples of information available to the general public and workers.

C Annexes

Annex 1 - Operational Limits and Conditions for Danish Decommissioning

Translation of the cover page of the Operational Limits and Conditions for Danish Decommissioning issued by the Nuclear Regulatory Authorities.

 Statens Institut for Strålebeskyttelse	
Operational Limits and Conditions for Danish Decommissioning	21.06.2013
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- Chapter 11: Fire safety
- Chapter 12: Waste Management Plant
- Chapter 13: Supplemental conditions for installations under or prepared for decommissioning
- Chapter 14: Reporting

Annex 2 - Examples of information available to the public and workers

This annex gives examples of information available to the general public and workers on the web sites of the licence holder Danish Decommissioning (www.decom.dk) and the Nuclear Regulatory Authorities (www.sis.dk, www.brs.dk). (Where only Danish titles are listed, document topics are explained in English after each title).

- Danish Decommissioning, Arbejdsmiljøredegørelse 2013 (Work environment survey) [[Link](#)]
- Danish Decommissioning, Årsrapport 2012 (Annual report) [[Link](#)]
- Danish Decommissioning, Description of The Waste Management Plant 2010 [[Link](#)]
- Clearance Laboratory - Capability and Measurement Sensitivity [[Link](#)]
- Risø DTU, Radioactivity in the Risø District January-June 2011 [[Link](#)]
- Danish Decommissioning, Dismantling the internal parts of research reactor DR 3 – A catalogue of radiation fields, 2010 [[Link](#)]
- Dekommissioneringen af DR 2 - erfaringer fra gennemførelsen, 2009 (Decommissioning of DR2 - lessons learned) [[Link](#)]
- Decommissioning of DR 2 - Final Report, 2010 [[Link](#)]
- Decommissioning of DR 1 - Final Report, 2006 [[Link](#)]
- Danish Decommissioning, Baggrundsrapport - til Dansk Dekommissionerings strategi for dekommissionering af de nukleare anlæg på Risø området, 2002 (Decommissioning strategy) [[Link](#)]
- Danish Decommissioning, Miljømæssige forskelle mellem tidsmæssige scenarier for dekommissionering af de nukleare anlæg på Risø-området, 2002 (Environmental essay of temporal scenarios for decommissioning) [[Link](#)]
- Danish Decommissioning, Dekommissioneringen af Risøs nukleare anlæg: VVM-redegørelse, 2002 (Environmental Impact Assessment) [[Link](#)]
- Danish Decommissioning, Frigivelse af materialer og landområder med lavt aktivitetsindhold, 2003 (Clearance of low level active materials and areas) [[Link](#)]
- National Institute of Radiation Protection, General Data as called for under Article 37 of the Euratom Treaty, Decommissioning of the Nuclear Facilities at Risø National Laboratory, Denmark, 2003 [[Link](#)]
- Operational Limits and Conditions for Danish Decommissioning [[Link](#)]