

Decommissioning in the Netherlands

September 2004

Current Status

In 1997 the Dodewaard Nuclear Power Plant (BWR, 58MWe) was shut down after 28 years of operation. The plant had been built primarily as a means of gaining experience with nuclear energy and was never meant to operate economically. In a liberalised electricity market this NPP is a non-economic liability. Therefore closure was a logic step.

Since 1997 the plant is in a state of decommissioning. All spent fuel has been removed from the reactor and shipped to the UK for reprocessing. Work is in progress to bring the plant in a state of safe enclosure and this will be completed early in 2005. The safe enclosure phase is foreseen to last for 40 years.

National policy

Regulation

All activities relative to the import, transport, use, storage, disposal and export of radioactive material are subject to the provisions of the Nuclear Energy Act (1963, last revised 2003)¹. This includes the construction and operation of nuclear power plants and also the decommissioning of these facilities.

The license for the decommissioning of the Dodewaard NPP has been granted in 2002.

The Environmental Protection Act requires that prior to the actual dismantling of a nuclear facility an Environmental Impact Assessment (EIA) is performed, describing alternative decommissioning options. The EIA report for the decommissioning of Dodewaard NPP was submitted as a supporting document in the above-mentioned licensing procedure.

Comparison of the three options considered in the EIA for Dodewaard (see strategy hereafter) led to results which are not discriminating with respect to radiation protection and general safety, but showed substantial cost differences.

Strategy

International consensus exists that there are basically three different strategies for the dismantling of nuclear power stations:

- direct dismantling within a period of ten years;
- postponed dismantling within some 50 years, after bringing the facility in a safe enclosure;
- "in situ" decommissioning.

These three strategies were also studied in the EIA for the Dodewaard NPP. In principle, the operator of the NPP expresses a preference for one of these strategies on the basis of a decommissioning plan. Since the environmental impact is minute for all three strategies the operator decided in favour of the least expensive strategy, namely postponed dismantling. A safe enclosure period of 40 years is foreseen. Although the government had a slight preference for direct dismantling for various reasons, no objection was raised against the decision of the operator. After dismantling of all the structures of the NPP the end-point will be the "green meadow" situation, meaning that the area will be decontaminated to such low levels of residual radioactivity that it can be cleared for unrestricted use.

¹ Nuclear Energy Act, Bulletin of Acts, Orders and Decrees, 82, 1963 as revised 2003

Decommissioning technique and inspection

New equipment needed for decommissioning, decontamination and dismantling activities will be checked on the appropriate safety and quality requirements based on the internationally agreed codes (ASME, KTA, CE).

The organisation of the inspections is in principle the same as during operation. The subjects of the inspection will change of course towards radiation protection and conventional safety aspects. Also the frequency of the inspections has changed: normal (2 times a week) during dismantling activities, lower (2-3 times a month) during "stable operation" and very low during the safe enclosure period.

Radioactive waste management

The Nuclear Energy Act stipulates that a licensee can dispose of waste only if disposal is specifically approved in a license or by handing it over to the authorised waste management organisation. As such, the Central Organisation for Radioactive Waste, COVRA, is the only organisation authorised by the Government of the Netherlands. COVRA N.V. is a State owned company.

COVRA is responsible for the treatment and storage of all kinds of radioactive waste (LLW, ILW, HLW, spent fuel). This comprises also the waste associated with dismantling of a nuclear facility. Storage takes place on one single location in the south-west of the country, for a period of at least 100 years.

Funding

Although a strict legal requirement to ensure that adequate funding is available for decommissioning does not exist, there is a general understanding that the "polluter pays principle" applies.

Consequently, the operators of NPP's have made financial provisions for decommissioning.

Competent bodies

In the decommissioning of nuclear facilities basically the same ministries are involved as in commissioning and licensing, each for its specific area of competence. Together these ministries form the competent body. The ministries most involved are:

- Ministry of Housing, Spatial Planning and the Environment, for protection of the general public and the environment;
- Ministry of Economic Affairs, with the responsibility to ensure the undisturbed supply of electricity to the public and for physical protection and safeguards;
- Ministry of Labour and Employment, for protection of the workers exposed to radiation from practices involving radioactive material.