NUCLEAR ENERGY IN THE NETHERLANDS

Authors:
Eveline Sillevis Smitt
Gerrit van der Veen
Machteld de Vries

1 Introduction

Nuclear energy has played a small but continuous role in the Dutch energy industry. For example, through the recent years, the share of nuclear energy in the overall Dutch energy market has fluctuated between 3% and 4%.[1]

Since the rise of nuclear energy in the 1960's there have only been a total of two nuclear power plants in the Netherlands: one in Dodewaard (in use from 1969) and another one in Borsele (Borssele plant, in use from 1973). Of the two power plants, only the Borssele plant is still being operated today. The Dodewaard plant was shut down in March 1997: seven years earlier than the initial anticipated date of 1 January 2004. The reason for the early shutdown was a lack of political support for nuclear energy as well as uncertainty about the plans for new nuclear power plants in the Netherlands.[2]

Nuclear installations in the Netherlands

The Borssele plant will be shut down no later than 31 December 2033. The Nuclear Energy Act (NEA) determines that the Borssele permit under the NEA will expire at that date and no other permit can be granted after that date.[3] Close to the site of the nuclear power plant houses the Dutch storage facility for nuclear waste (COVRA).

[1] *Statistics Netherlands, Energy and heat; production and stake through carrier, 18 December 2015, http://statline.cbs.nl/StatWeb/publication/?VW=T&DM=SLNL&PA=80030ned&D1=3&D2=0&D3=1,6,11-12&D4=a&HD=110329-0110&HDR=T,G2&STB=G1,G3.*

[2] *Dodewaard Nuclear Powerplant website, seen on 4 April 2016, http://www.kcd.nl/historie/einde.html.*

[3] *Art.15a NEA.*

Apart from nuclear energy, some other nuclear activities are carried out in the Netherlands. Delft University possesses a reactor for research purposes. The Nuclear Research & consultancy Group (NRG) operates two research reactors in Petten: a high flux reactor and a low flux reactor. The high flux reactor produces isotopes for medical purposes.

Finally, Almelo accommodates a URENCO facility that enriches uranium through the use of an ultracentrifuge. The URENCO facility is still part of the URENCO Group established by the Netherlands, Germany and the United Kingdom in 1971 through the Almelo Treaty.

This report aims to provide insight into the Dutch legal framework on nuclear activities and the way the nuclear legal landscape has changed in recent years, especially since the incidents at the Fukushima plant. First, paragraph 2 provides insight into the general legal framework. Paragraph 3 gives an overview into national and international liability, while the subsequent paragraphs deal with nuclear waste (4) and the decommissioning funds (5). Paragraph 6 covers recent developments. Finally, paragraph 7 provides a conclusion to this report.

2 Legal framework

The Dutch legal framework on nuclear energy is laid down primarily in the Nuclear Energy Act (NEA). The NEA was put into force in 1963 and has not been subject to major changes ever since. The NEA provides the general rules and principles (the framework) for nuclear activities in the Netherlands. Specific standards are laid down in several governmental decrees that cover radiation protection, transport, accidents etc. The NEA and its governmental decrees exclusively apply to all substantive aspects of nuclear activities. Therefore, no other laws (such as the Environmental act) apply to nuclear activities as such.[4]

However, some related aspects are governed by other laws. For example, the Working Conditions Act covers the working conditions for employees of nuclear facilities. Furthermore the regime for nuclear liability is laid down in a separate act: the Nuclear Incidents (Third Party Liability) Act (see paragraph 3).

The Dutch nuclear legal regime is (in line with the European legislation) based on three main principles:

- Justification;
- As low as reasonably achievable (ALARA), and
- Dose limits.

By justification it is meant that an act that results in exposure to ionized radiation is only allowed when the economic, social and other advantages of that act outweigh the health damage that might be caused by that act.

The ALARA principle means to achieve optimization aimed at limiting the chance of emissions and restricting exposure. Optimization takes place in the preparation and the planning phase before the activity takes place, as well as after the nuclear activity has taken place. The application of this principle strives to limit the chances for nuclear damage to a chance as low as can be reasonably achieved in the particular circumstances. In this equation the social and economic factors as well as the environmental and occupational hygienic aspects are taken into account.

Dose limits aim to provide a safety net when the principles of justification and ALARA do not provide a satisfying level of protection.

2.1 Nuclear Energy Act

As stated before, the NEA provides a general framework for nuclear activities in the Netherlands. The NEA determines who the competent authorities are, when a nuclear permit is required, on what grounds governmental decrees can be drafted and procedure and enforcement rules. The NEA is accompanied by the following governmental decrees:

[4] *Art. 72 NEA.*

- Radiation Protection Decree;
- Nuclear plant, Fissionable Materials and Ores Decree;
- Fissionable Materials, Ores and Radioactive Substances (Transport) Decree;
- Fissionable Materials, Ores and Radioactive Substances (Registration) Decree;
- Radioactive Waste and Spent Fuel Im-, Export and Passage Decree;
- Nuclear Energy Act Remuneration Decree;
- Nuclear Energy Act Defense (Exemption) Decree;
- Nuclear Energy Act (Secrecy) Decree;
- Radioactive Scrap (Detection) Decree;
- Execution of articles 22 and 33 of the Nuclear Energy Act Decree;
- Radiation Protection Implementing Regulation;
- Decommissioning Regulation;
- Publication Justification Use of Ionizing Radiation Regulation.

The NEA regime only applies to the Netherlands. Therefore, the Dutch overseas territories do not fall within the scope of the NEA.

2.2 Authority

The Minister of Economic Affairs is the competent authority for permits and notifications.[5] However, the Minister has given mandate to the Minister of Infrastructure and the Environment to grant permits because the latter Minister is responsible for the Authority on Nuclear Safety and Radiation Protection (ANVS) that de facto carries out the permit and notification scheme. Therefore, all NEA decisions and permits are now effectively given by the Minister of Infrastructure and the Environment assisted by the ANVS.

The ANVS was established on 1 January 2015. Prior to the establishment of the ANVS, several Ministers and government authorities were involved with nuclear activities. With the establishment of one independent government agency, all knowledge now rests with the ANVS.

2.3 Permits and notifications

Anyone carrying out nuclear activities in the Netherlands must ascertain whether the activities require a permit, a notification or neither.

This system is an implementation of the Euratom Treaty and the subsequent directive 96/29/Euratom that identifies certain activities that require permits and leaves it up to the member states to determine whether some other activities require a permit as well or some other form of government control.

A permit is a written consent by the competent authority upon application to carry out certain nuclear activities. This is the most severe permission under the NEA. A more lenient regime is applied to certain less severe nuclear activities; for these activities a notification can be submitted to the competent authority through a predetermined form. Under the

[5] *Art. 15 NEA.*

latter regime, the entity that carries out the nuclear activities should ensure that the activities are in accordance with the general rules laid down in the NEA and the mentioned governmental decrees (most importantly the Radiation Protection Decree).

Permits are required for the following (general) activities[6]:

- To transport, to possess, to bring or have bring inside or outside of the Netherlands territory or to dispose of nuclear fuel or ores;
- To operate, establish, put into use, shut down, change or dismantle an installation where nuclear energy can be generated, nuclear fuel can be made, processed, treated or stored;
- To drive, establish, operate or change equipment suited to propel a vessel or other vehicle through nuclear energy.

The Radiation Protection Decree further determines when a permit is required[7], when a notification is required[8] and when neither of these are necessary.[9] For example, nuclear apparatuses with a tube tension of no more than a 100 Kv are subject to the notification scheme, while nuclear apparatuses with a tube tension of more than a 100 Kv need a NEA permit.[10] Furthermore, nuclear apparatuses with a tube tension of less than 5 Kv are exempted of the notification scheme, but still need to comply with the rules laid down in the NEA and the mentioned governmental decrees insofar as they are applicable to the apparatus in question.

2.3.1 Permit application process

The process of application for a NEA permit is described in par. 4.7 of the Radiation Protection Decree and is further detailed in the Radiation Protection Implementing Regulation.

The application is submitted to the ANVS. The process after application is laid down in the General Administrative Law Act and is somewhat supplemented by provisions from the Environmental Management Act and the Environmental Permitting (General Provisions) Act that have been declared equally applicable to the NEA permit procedure. Either a long or a short procedure is applicable to an application. In general, the long procedure is applied unless the NEA explicitly states that the short procedure applies. For example, the short procedure applies to certain changes of existing permits and to certain medical cases where a patient is in urgent need of radioactive substances.[11]

The long procedure can legally take six months at most, but can be prolonged with a reasonable term if the subject of the permit proves to be complex. The prolongation has to

[6] *Art. 15 NEA.*

[7] *Art. 23-26 and 35-38 Radiation Protection Decree*

[8] *Art. 21-22 Radiation Protection Decree*

[9] *Art. 2 and 21 par 2 Radiation Protection Decree.*

[10] *Art. 21 Radiation Protection Decree.*

[11] *Art. 29a NEA.*

be notified to the applicant within eight weeks after application. After due time, the competent authority publishes a draft permit to which anyone can express their views. The competent authority must accept or reject those views in the final permit that must also be published. All parties that have expressed their views to the draft permit can appeal the permit at the Council of State within six weeks after publication, provided they qualify as parties with a direct interest to the permit involved.

The short procedure takes eight weeks at most, but can also be prolonged with a reasonable term if the competent authority cannot reach a decision within the initial eight weeks. The competent authority has to notify the applicant of the prolongation within the initial eight weeks. After the permit has been granted, parties with a direct interest that are directly affected by the permit can lodge a notice of objection to the Minister within six weeks after the permit has been granted. After the Minister has made a decision on the objections, the interested parties can lodge an appeal at the district court and after that appeal to the Council of State.

2.3.2 Assessment of application

The competent authority can refuse a permit application on the various following grounds[12]:

- In the interest of:
  - Protection of humans, plants, animals and goods;
  - Safety of state;
  - Storage and security of nuclear fuels and ores and the security of nuclear power plants;
  - Energy supply;
  - Safeguarding payment of compensation for third parties for damages inflicted on them;
  - Compliance with international obligations.
- When no current techniques are applied;
- On grounds determined in the Radiation protection decree:
  - The grounds for justification (see Publication justification use of ionizing radiation regulation), expertise, optimization and when dosage limits laid down in the NEA and the Radiation protection decree are not met;
  - The appropriate dosage limits for people outside the location where the nuclear activity is carried out are not met;
  - The specific character of the nuclear activity cannot be justified;
  - No financial security is provided for decommissioning.[13]

When applying for a permit under the NEA, an applicant must ensure and make clear that none of the grounds of refusal are met. The competent authority can also ensure that the above mentioned criteria will be met by attaching certain regulations or provisions to the permit.[14]

[12] *Art. 15b NEA and art. 39 Radiation protection decree.*

[13] *Art. 15f NEA.*

[14] *Art. 15c-15e NEA.*

2.3.3 Revocation

In line with the aforementioned grounds for refusal the NEA provides the competent authority with the power to revoke a permit when the protection of the interests mentioned under 2.3.2 deem it necessary. The same procedure with which a permit was granted, applies to the revocation of a permit.

2.4 General rules

The general rules that apply to all nuclear activities (whether subject to permits, notifications or none) are laid down in paragraph 2.1 of the Radiation protection decree.

Apart from the three base principles, justification, ALARA, and dose limits, the general rules cover the following subjects:

- Risk analysis;
- Expertise;
- Information and instruction;
- Special regulations for activities with apparatuses and sources;
- Administration.

These general rules are applied to permits, activities that require a notification and other activities alike.

3 Liability

3.1 National

The Paris (1960) and Brussels (1963) conventions on Nuclear Third Party Liability have been implemented in the Nuclear Incidents (Third Party Liability) Act (1979), as amended later on.

The Netherlands ratified both conventions, which have direct effect. Moreover, the Netherlands chose to implement the following system into the Nuclear Incidents (Third Party Liability) Act (NIA). The operator of a nuclear facility is strictly and exclusively liable for nuclear incidents. However, the compensation for damages is limited by law and the operator must have adequate insurance. Furthermore, the liability is limited in time.

Currently the maximum liability of an operator of a nuclear facility in the Netherlands is € 1.2 billion euros.[15] The operator has to provide financial security for this sum. Liability for the operator is, as stated above, based on strict liability.

The system of the Paris convention and the NIA ensure that big groups of those affected by nuclear activities due to a nuclear incident are helped adequately. For compensation of damages from nuclear incidents, injured parties therefore have to turn to the operator of the nuclear facility. The (obligated) insurance of the operator of the nuclear facility will cover the first part of the damages. It must be noted that claiming the damages is subject to a time of expiry which amounts, in case of personal injuries, 30 years after the accident and 10 years after the accident for all other damages.

Therefore, operator must get his own liability insurance. This obligation is in fact also laid down in the grounds for refusal when a permit under the NEA is required (see also paragraph 2.3.2).[16]

If it is not possible to obtain insurance for the maximum amount laid down in the NIA (which might occur), the State might provide additional insurance through the so called "Additional State Policy". When the legal maximum amount is not enough to cover the damages, the State provides the rest in accordance with the Paris convention as stated before.

The NIA provides a specific district court (The Hague District Court) that exclusively hears claims based on the NIA. In addition to the appointment of a specific court, the NIA provides a special procedure for those affected to have their claim verified when it is expected that the available sums will not be sufficient.

The national liability does, contrary to article 9 of the Paris convention, not exclude damages resulting from severe and exceptional natural disasters (force majeure).

[15] *Art. 5 NIA*

[16] *Art 15b-1 NEA*

3.2 International

According to the NIA, liability for operators of nuclear facilities in the Netherlands is not limited to damages within the Netherlands. The international liability extends to damages incurred on the territory of (i) members of the Paris Convention, (ii) members to the joint protocol to the Paris convention or (iii) anywhere, when the damages were caused by a nuclear accident that happened on Dutch territory.[17]

[17] *Art. 15 NIA.*

4 Nuclear waste

Every year around 800 m3 of low- and mid-level nuclear waste is produced in the Netherlands. The waste is mostly industrial from the nuclear power plant, the industry, hospitals and research facilities.

The Central Organization For Radioactive Waste (COVRA) stores the nuclear waste produced in the Netherlands. COVRA is 100% owned by the Dutch government since 2002.

The storage period is expected to last at least 100 years. According to the principle of optimization, the nuclear waste must be removed as soon as reasonably possible to minimize risks for humans and the environment. Therefore, COVRA also collects the waste from its producers.

After use, the fuel bars of the Borssele plant still contain some useful materials. The owner of the Borssele plant sends the fuel bars to Cap La Hague in France to reprocess them. At the plant in France, the useful materials (which amount to 95% of the fuel) are separated from the actual waste (5%). The actual waste is then vitrified and sent back to the Netherlands to be stored at COVRA.

4.1 Legal framework

Nuclear waste can consist of nuclear fuel or a radioactive substance. As a result, activities with nuclear waste (such as storage) require the same kind of permits and/or notifications as other nuclear activities do. Activities with nuclear waste are not regulated separately from other nuclear activities, except for import and export.

The Radiation Protection Decree states that a radioactive substance is regarded as waste, when the Minister or its owner has no further use for it and it cannot be discharged through water or air.[18] Nuclear substances that have a level of radioactivity below the levels mentioned in the annex to the Radiation Protection Implementing Regulation are however not regarded as nuclear waste under the NEA.

Nuclear waste can in principle be kept at its production location for up to two years if it is stored in a suitable space and if it concerns radionuclides with a half-life of up to 100 days. Radionuclides with a higher half-life cannot be stored at the place of production, and must be collected by COVRA.

The NEA and the Radiation Protection Decree do not permit mixing nuclear waste solely to lower the concentration of radioactivity.[19]

4.2 Final disposal

As stated before, nuclear waste in the Netherlands is stored for at least 100 years above

[18] *Art. 38 Radiation Protection Decree.*

[19] *Art. 38 par. 5 Radiation Protection Decree.*

ground in the COVRA facility. After that, the aim is to store the waste underground in a geological storage facility. However, this is not yet possible due to the fact that there are no geological storage facilities available in the Netherlands (yet).

A report from the Dutch Commission on Storage of Nuclear Waste (CORA) states that geological storage is possible in the Netherlands.[20] Since 2011 final disposal of nuclear waste through geological storage is being researched through a specific research program.

While geological storage is being researched, the Netherlands does not have a geological (final) storage facility yet. Only the United States of America possesses such a facility: the Waste Isolation Pilot Plant in New Mexico.

4.3 National program

As required by directive 2011/70/Euratom member states must draw up a national program for the management of nuclear waste and used fuel. The Dutch program has been published from 30 September 2015 until 10 November 2015. During this period citizens and organizations were able to voice their opinion. These opinions have resulted in some changes to the initial program. The revised program was presented to the Parliament on 10 February 2016. After the program is approved by the Parliament, it will be submitted to the European Commission. Subsequently, it will be brought up to date every 10 years.

The program describes the Dutch policies on nuclear waste based on the following principles:

- Minimization of the production of waste;
- Safe management of nuclear waste;
- No unreasonable burdens for future generations, and
- The producers of nuclear waste will pay for its management.

As stated before, the general- and safe waste management policy is to store nuclear waste above the ground for about 100 years and to provide final geological storage from 2130 onwards. The final decision making process on geological storage not take place until 2100. The program foresees that in 100 years a better option than geological storage will be available and leaves it open to choose a different option.

Safe management of waste is also achieved through monitoring, good knowledge management and the employment of experts.

Minimization of nuclear waste will be achieved through several means. First, in the permit application process through the principle of justification, applicants must ensure that the production of nuclear waste is as limited as possible. The same goes for import of nuclear waste. Second, the operator of a nuclear facility must also recycle nuclear waste as much as possible before it can be disposed of. In addition to a focus on recycling, the program also focuses on the reintroduction of nuclear waste that has fallen below the radiation limits.

[20] State Secretary of VROM, letter to the Second Chamber, 2002-2003 28674 #1.

The program aims to let the generations that have profited from nuclear activies carry the burden of waste management. This is insured by the implementation of a passive and safe method of waste management. It must be insured that future generations have access to the necessary knowledge and financial means to create a geological storage facility or another final storage facility.

Last, the nuclear waste-version of the polluter pays principle obliges the operator of a nuclear facility to carry out measures for the safekeeping of humans and the environment. These include the reprocessing of used fuel and providing financial safeguarding.

5 Decommissioning fund

The obligation to establish a decommissioning fund has been laid down in the NEA since 2011.[21] The NEA now requires an permit holder to provide financial security for the decommissioning of its plant. The financial security can be provided through a bank guarantee, a participation in an already set up decommissioning fund or other means that insures financial security according to the Minister.

Before the revision of the NEA that introduced the legal obligation to set up a decommissioning fund, similar funds had been set up voluntarily.

5.1 Dodewaard

Presently, there is one major decommissioning operation being executed at the Dodewaard power plant. The decommissioning is expected to take about 40 years. After the Dodewaard plant was closed in 1997, a decommissioning program was instituted. The decommissioning of Dodewaard is currently in the 'Safe Enclosure' phase. This means that parts of the plant are awaiting final removal.

High radioactive material has already been removed from the site and the auxiliary buildings (such as offices) have been demolished. Other parts have been removed and decontaminated. Most of the radioactive substances have been removed from the site of the plant. Therefore, the ventilation and safety systems have been adjusted to reflect this. When the decommissioning activities are complete, the plant will be sealed off. After the sealing, the decommissioned plant only needs guarding and monitoring.

5.2 Petten

In the near future, a second reactor will be decommissioned. Currently, NRG prepares to dismantle its low flux reactor. More than 50 years after it was first commissioned, the reactor will be dismantled for commercial reasons. Moreover, on the same site a new "state of the art" reactor "PALLAS" will be put into place for the production of (medical) isotopes and for nuclear technological investigation (see also paragraph 6.2).

[21] *Art. 15f NEA.*

6 Recent developments

In the past five years since Fukushima, the Dutch government has developed several initiatives to make sure that nuclear activities within the Netherlands are safe, continue to be safe and apply the most recent safety technology.

6.1 Stress tests

The European Commission letter of 25 May 2011 on the safety of nuclear power plants in Europe after Fukushima states that the safety of those plants must be inspected based on an extensive and transparent "stress test" based on the Declaration of ENSREG.[22]

As a result of the Commission letter and the Declaration of ENSREG, the Minister of Economic Affairs, Agriculture and Innovation (the then competent authority) and the permit holder of the Borssele (EPZ) plant conducted a stress test. In this stress test the requirements of the Declaration of ENSREG were applied. However, the Minister required that also the consequences of events with a human cause be involved in the stress test.[23] Furthermore, the Minister decided later on to subject the other Dutch nuclear installations[24] to have a stress tests executed as well.

The Borssele stress test showed that the plant meets its permit obligations on safety very well. The operator has proposed measures to further increase robustness of its plant and topics for further study:

- Regarding severe accident management (SAM) measures some aspects need further addressing like long-term measures. Furthermore the effectiveness of some procedures may need to be established by conducting tests. Training of long-term SAM measures should improve the reliability of existing procedures under crisis conditions;
- The description of 'cliff edges' in the Report for most scenarios has been elaborated to a limited detail;
- The Minister has the opinion that the impact of floding with a very long return period (e.g. ten thousand, one hundred thousand or one million years) is not known in much detail yet and that further assessments are necessary.

The Minister agreed with most of these measures.

The results of the stress test were reported to the Commission.[25] Because these additional requirements were not part of the EU prescribed stress test, the test results of the influence of events with a human cause were not included in the aforementioned report.

[22] European Nuclear Safety Regulators Group, 31 May 2011.

[23] Minister of Economic Affairs, Agriculture and Innovation, letter to EPZ, ETM/ED/11074538.

[24] Storage facility COVRA, the enrichment facility of URENCO and the research reactors in Petten and Delft

[25] Lower Chamber 2011/12, 32645, 32. Netherlands' report on the Post-Fukushima Stress Test for the Borssele Nuclear Power Plant.

In continuation to the stress tests, the Dutch government has drawn up the Netherlands Action plan (NAcP). This plan describes the way the results of the stress tests are implemented in the Netherlands.

6.2 Pallas

NRG (the owner and operator of the high flux reactor in Petten) plans to replace this reactor with a new "state of the art" research reactor named Pallas. Pallas will be used for research and production of radioactive isotopes that will be used for diagnosing and treating cancer.

As a result of the plans for the new Pallas reactor and plans to modernize the research reactor in Delft, the ANVS has drafted the aforementioned (par. 2.3.2) guidelines on safe design and safe operation of nuclear reactors. The Guidelines were modeled after a similar German document on safety guidelines for existing nuclear reactors. Furthermore, the Guidelines were updated with the most recent scientific findings on safety of nuclear reactors. The most recent recommendations of the IAEA and the WENRA were included in the Guidelines as well as Finnish regulations on the building of new reactors. Finally, the lessons learned from Fukushima were included in the Guidelines as well.

These guidelines therefore present the most recent state of technology and science on the safety of nuclear reactors.[26] The ANVS now uses these guidelines to assess applications for permits under the NEA. Permits are only granted if the most recent safety standards are met by the applicant.

The science and techniques of nuclear safety are constantly changing and developing. Permit applicants and –holders must take this into account while applying for a permit or operating a nuclear device. A permit can be refused or revoked when old techniques are used. Permit holders must ensure regularly that they apply the most recent scientific and technical developments.

6.3 New nucleair power plant?

The energy companies Delta and RWE/Essent[27] have both had plans to build a second nuclear power plant in Borsele. However, because of the economic crisis and the low electricity prices in North-West Europe, these plans have been put on hold for now.

In 2012 both companies stated that they would not apply for an NEA permit in the next years but that their plans had not been put on hold indefinitely.

[26] ANVS, "Guidelines to Safe Design and Safe operating of Nuclear Reactors" (Handreiking VOBK), 19 October 2015.

[27] Both 50/50 shareholders of the present nuclear power plant in Borsele

7 Conclusion

The Netherlands do not have a vast interest in nuclear energy. Of the two nuclear power plants that ever existed on Dutch territory, only one is still being operated today but will have to be decommissioned as from 2033 at the latest.

While there is no big interest in nuclear energy, the Netherlands have experience in other nuclear activities that are heavily regulated by the NEA. The NEA provides detailed regulations on relevant aspects concerning nuclear safety, knowledge, financial security and decommissioning. It is interesting to note that there is no separate regime for nuclear waste. Waste is dealt with on the same terms as other nuclear activities, except for import and export.

Liability for damages deriving from nuclear accidents is covered by the Paris Convention and the Dutch rules laid down in the NIA. The liability for the operator of a nuclear plant is based on strict liability and limited to 1.2 billion euros for the operator for which financial security must be provided for. With regard to liability for accidents caused by force majeure, the NIA deviates from the Paris convention and holds operators of nuclear facilities liable for those damages. Furthermore, liability is not limited to the territory of the Netherlands, but in some cases extends to damages outside of Dutch territory as well.

As a result of the incidents at Fukushima, the operators of nuclear facilities in the Netherlands have carried out stress tests. Those tests did not indicate any imminent dangers, but provided the operators of the nuclear facilities with an opportunity to strengthen their safety procedures.