

Regulatory Updates

Nuclear safety...

ASN Report on the state of nuclear safety and radiation protection in France in 2020

August 2021



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ASN published an English version of its report on the state of nuclear safety and radiation protection in France in 2020. The report is available on www.french-nuclear-safety.fr.

Learning lessons from this situation to strengthen a culture of anticipation and precaution

The year 2020 was profoundly marked by the crisis caused by the Covid-19 pandemic. ASN considers that the level of nuclear safety and radiation protection achieved remained satisfactory and that those responsible for nuclear activities were able to adapt and cope with the situation.

In early 2021, the health crisis is still not over and prudence is required with regard to the lessons to be learned, in an uncertain and changing context.

ASN considers that this situation raises systemic questions which could apply, in the same terms, in the event of a nuclear crisis. This notably concerns trust in scientific expertise and in the authorities by the population and the conditions determining the acceptability of the restrictive population protection measures.

More generally, ASN considers that the first analyses of the problems encountered during this health crisis confirm the absolute need, which it has regularly underlined, to strengthen the culture of anticipation and precaution among all those concerned by nuclear matters.

ASN coordinates the MDEP multinational inspection of a Framatome plant

September 2021

A multinational inspection of the Framatome Saint-Marcel plant (Saône-et-Loire département) was held from 3 to 6 May and from 28 June to 2 July 2021, in the context of the Multinational Design Evaluation Programme (MDEP).

Coordinated by ASN, this inspection was conducted by inspectors from the nuclear regulators of the United States of America (US-NRC), United Kingdom (ONR), South Africa (NNR) and Finland (STUK). The Framatome Saint-Marcel plant currently manufactures or has manufactured equipment for the nuclear industry of each of these countries. The plant has met with difficulties resulting especially in the notification of a manufacturing deviation concerning the stress relief heat treatment of certain welds in several projects. The Framatome Saint-Marcel plant is therefore of particular interest to the nuclear regulators of the countries concerned.

The inspectors examined the ability of this plant to manufacture equipment that meets the safety requirements of each country. They focused in particular on the provisions, the progress and the results of the various quality improvement plans currently implemented in the plant and the setting up of manufacturing process control procedures. The inspection confirmed that Framatome has taken steps that are commensurate with the issues. These steps have already brought improvements in several areas and are still in progress. The inspection revealed no noteworthy findings.

Created in 2006, MDEP is a multinational initiative which aims to enhance cooperation in the safety assessments of new reactor designs and to identify possibilities for the convergence and harmonisation of safety practices. The MDEP groups the nuclear regulators of fifteen countries, including France.

ASN considers that EDF's planned break preclusion approach for the EPR2 reactor is acceptable

September 2021



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ASN considers that using a break preclusion approach for the main lines of the primary and secondary systems of the EPR 2 project is acceptable. This position supplements ASN's 2019 opinion on the safety options of this reactor project. As with the EPR reactor, EDF intends to apply a break preclusion approach to its new EPR 2 reactor model. The principle of this approach as applied to lines consists in the nuclear safety case not considering the consequences of a line rupture because this rupture is made highly improbable with a high degree of confidence. It is underpinned by particularly stringent measures in terms of the design, manufacture and in-service monitoring of these lines.

In 2019, ASN considered that the choice of a break preclusion approach for the EPR 2 reactor had not been sufficiently substantiated and that EDF needed to define the options selected for the design, manufacture and in-service monitoring of the lines concerned. Since then, EDF has supplemented its file and intends to make a number of design, manufacturing and organisational changes to enhance safety. These changes will more particularly concern the choice of materials and manufacturing and inspection techniques. Furthermore, even though EDF applies a break preclusion approach, it also intends to add certain devices to mitigate the consequences of any break, such as separating walls, whip-restraint devices and steam evacuation vents.

ASN has issued its opinion on the management of radioactive materials and waste

June 2021

Pursuant to the 2016-2018 edition of the National Radioactive Materials and Waste Management Plan (PNGMDR) and in response to a request from the Ministry in charge of Energy, ASN issued seven opinions over the period 2020 to 2021 on the management of radioactive materials and waste produced in France. In these opinions, ASN notably underlines the fact that decisions will be needed in the very near future, so that safe management routes are available for all types of radioactive waste in the coming 15 to 20 years.



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These opinions are based on an in-depth analysis of the studies submitted by the producers and managers of radioactive waste, pursuant to the order of 3 February 2017 [1], carried out on the conclusions of the public debate held for the first time in 2019, in preparation for the 5th PNGMDR, and on the broad outlines decided on by the Minister for Ecological Transition and the ASN Chairman on 21 February 2020 following the public debate. Their purpose is to provide recommendations for concrete action on subjects for which decisions can be taken immediately or, failing which, during the course of the Plan.

ASN stresses the importance of planning ahead in making radioactive materials and waste management choices. More particularly, ASN considers that:

- The valorisable nature of the radioactive materials must be assessed, taking account of the time-frames within which industrial routes for using these materials will be available, and the volume of material concerned. The valorisation of a radioactive material could be considered to be plausible if the existence of an industrial route is realistic within a time-frame of about thirty years. For more distant future,

advance preparation must be made for storage over the corresponding time-frames, longer than about thirty years, in safe conditions, along with the possible management of the radioactive substance as waste. In any case, if there are no prospects for use within a time-frame of about a century, the substance shall be reclassified as waste. These principles shall notably be applied for a substantial quantity of depleted uranium currently being stored as a material.

- The next multi-year energy programme shall define the prospects beyond 2040 for reprocessing of spent fuels so that the necessary action for cessation or continuation of this policy can be planned for in advance.
- Pending the creating of a disposal solution, storage needs must be anticipated. More specifically, the construction of additional spent fuel storage capacity is a strategic issue for the overall safety of the nuclear installations. EDF must submit a creation authorisation application for its chosen option of a centralised fuel storage pool, as soon as possible.
- Long-term storage cannot be considered a final solution for the management of high level, long-lived waste. This implies maintaining oversight on the part of society and the retrieval of waste by future generations, which it would appear to be hard to guarantee over a time-frame of several centuries.
- The industrial scale transmutation of waste already conditioned in the Cigéo reference inventory is not a credible prospect. If studies were to continue on the subject, they would have to cover the transmutation of radioactive substances currently categorised as materials, or the transmutation of waste produced by a future fleet of reactors.
- The producers must implement an ambitious programme to characterise bituminous waste packages, which is essential to demonstrating that some or all of these packages could be disposed of with a high level of safety in the Cigéo repository, with no prior treatment.
- The licensees must implement all necessary resources to retrieve and condition legacy waste, both high level waste and intermediate level, long-lived waste produced before 2015 and, for which they are responsible in compliance with the 2030 deadline set by law, giving priority to those actions for which the safety implications are greatest.

- In order to plan ahead for the creation of repositories for very low level (VLL) waste to meet the identified needs, ANDRA must submit an application for an increase in the authorised capacity of CIRES at least six years before the foreseeable saturation and study the creation of additional disposal facilities for VLL waste, whether centralised or decentralized.
- The valorisation of certain types of VLL waste, large volumes of which will be produced, must be encouraged, notably through the creation of a specific framework of exemptions and oversight for the valorisation of low-level metal materials.
- Efforts must be ramped up to allow the creation of disposal capacity for low level, long-lived waste (LLW-LL). On this point, ANDRA must submit a dossier by mid-2023 presenting the technical safety options for the sub-surface disposal of LLW-LL waste on the site of the Vendevre-Soulaines association of municipalities (Aube).

In these opinions, ASN underlines the need to involve all the stakeholders, notably the representatives of the regions involved or liable to become involved, in the management choices for very low level (VLL) waste, low level, long-lived (LLW-LL) waste, legacy radioactive waste locations and the management of water from former uranium mining sites, in particular on the basis of pluralistic multi-criteria analyses [2].

The 5th PNGMDR project, henceforth produced under the sole responsibility of the Ministry for Ecological Transition, will be submitted for consultation to the Environmental Authority and the public before the end of 2021. At the same time, ASN will issue a final opinion on the draft regulatory texts for the 5th PNGMDR. The Plan, as finalised by the Government, will then be evaluated by Parliament.

[1]. Order of 23 February 2017 implementing Decree 2017-231 of 23 February 2017 implementing Article L. 542-1-2 of the Environment Code and establishing the prescriptions of the National Radioactive Materials and Waste Management Plan.

Autorité de Sûreté Nucléaire

15, rue Louis Lejeune – CS 70013
92541 – Montrouge Cedex – France

Tel.: +33 1 46 16 40 00

Email: info@asn.fr

www.french-nuclear-safety.fr