French Nuclear Safety Authority N#21 August 2019

Regulatory Updates

Nuclear safety...

ASN is keeping a close watch over irregularities detected at the metallurgist Aubert et Duval

August 2019

In December 2018, Eramet (a French mining and metallurgical group) published on its website a report of nonconformities in the quality management system within its Alloys branch, which includes the company Aubert et Duval. This subsidiary manufactures numerous metallurgical products that enter into the composition of diverse equipment items (studs, pump components, pressure equipment, etc.), some of which are intended for the nuclear industry.

The Eramet group informed EDF of this situation on account of the number of potential deviations that could affect the NPPs operated by EDF, and EDF immediately established an inspection plan. This inspection plan was communicated to ASN.

In parallel with this, ASN asked the other basic nuclear installations licensees to check whether any equipment in their facilities having serious implications for safety had been manufactured using materials from the Auber and Duval workshops.

The identified irregularities consisted mainly in inappropriate processing of certain internal anomaly sheets resulting from the manufacturing process, and in modifications of laboratory data.

An initial assessment shows there to be no impact on the safety of installations:

- Over the verification perimeter investigated so far (4,500 internal anomaly sheets and more than 700 data items for the 2011-2018 period), EDF has found more than 200 deviations requiring specific processing, but concludes that none of the deviations observed renders a metallurgical product supplied by Aubert et Duval unfit for its current use. At this stage of the investigations, the information ASN has received from EDF confirms this analysis.
- Orano, for its part, has asked its subcontractors to check their procurements. The responses are currently being analysed.
- The other nuclear licensees have so far not identified any equipment items with safety implications that are concerned by these irregularities.

The investigations carried out further to the discovery of these nonconformities have revealed the application, within entities internal to Aubert et Duval, of instructions which aimed to modify results in order to render them administratively compliant with the technical requirements. In application of Article 40 of the Code of Criminal Procedure, ASN has reported these practices - which could amount to fraud - to the Public Prosecutor.

For more information
www.french-nuclear-safety.fr

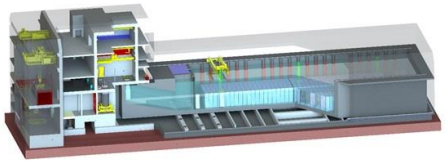
ASN issues its opinion on the safety options dossier for the planned centralised spent fuel storage pool

August 2019

The EDF NPPs, which produce more than 70% of France's electricity, need to be able to send their spent fuels (SF) to a storage location. In 2011, ASN drew EDF's attention to the probable saturation of storage capacities for these SF and, in its opinion of 18 October 2018 on the consistency of the nuclear fuel cycle in France, ASN made a number of requests for dealing with this.

The National plan on management of radioactive materials and waste (PNGMDR) 2016-2018 underlined the fact that this saturation could occur between 2025 and 2035. The Order of 23 February 2017 setting out the requirements of the PNGMDR, therefore urged EDF to send ASN the technical safety options regarding the creation of new SF storage capacity. In response to this demand, EDF asked ASN in April 2017 for its opinion on the safety options for a SF centralised storage pool project.

The facility envisaged by EDF is a pool designed to store 10,000 tonnes of heavy metal[1] (tHM), corresponding to about 21,000 fuel assemblies. It would consist of two storage pools, of identical capacity and design, which would be gradually commissioned over a period of time.



On 23 July 2019, ASN issued its opinion on the EDF's file, taking into account notably the observations resulting from the public's consultation, from 16 May to 5 June 2019, on ASN's draft opinion.

ASN considers that the general safety objectives and the design options adopted are on the whole satisfactory. Additional studies and demonstrations are however required, notably concerning the design and the control of manufacturing, in order to guarantee the long-term leaktightness of the pool. On 29 July 2019, ASN also sent EDF a letter specifying these requirements for the creation authorisation application.

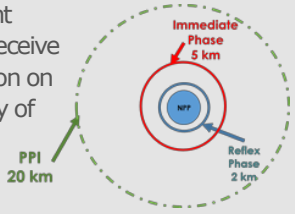
[1] *It corresponds to the mass of nuclear fuel before burn-up without its structures and without the oxygen with which it is associated.*

Extension of the off-site emergency plans around the French NPPs

August 2019

The Fukushima nuclear accident in Japan, in 2011, led the authorities to revise the population protection measures, in line with international practices and the recommendations from the European nuclear safety and radiation protection authorities.

In 2018 and 2019, the radius of the zone around the French nuclear installations in which the resident populations will receive regular information on the state of safety of the installations and instructions to follow in the event of an emergency, has been extended from 10 km to 20 km.



This extension of the zone covered by the "Off-site Emergency Plan" (PPI), decided by the French Government, aims to align French practices with European practices with regard to risk prevention. It concerns the 19 NPPs, 2.2 million people and more than 200,000 buildings open to the public spread among 1,063 municipalities.

An information campaign started on 3 June 2019 with a nominative letter sent out to all local residents announcing the inclusion of their municipality within the new perimeter of the PPI and the preventive distribution of iodine tablets in September 2019. At this date, this campaign will continue with the sending of a second nominative letter, containing a voucher enabling the persons and establishments concerned to collect their iodine tablets from a participating pharmacy.

This campaign, which is implemented locally by the Prefects, with the assistance of the regional health agencies, the ASN regional divisions, the EDF NPPs, the mayors, local information committees, pharmacists and general practitioners in the zones concerned, aims to:

- Develop a radiation protection culture among the general public.
- Make individuals and buildings open to the public aware of the need to collect the iodine tablets from pharmacies.
- Encourage a high level of participation in the collection of tablets from the pharmacies.

Throughout the campaign, a website (www.distribution-iode.com) and toll-free phone number are available to the public.

For more information
www.french-nuclear-safety.fr

ASN issues its opinion on the safety options for the EPR new model reactor and its EPR 2 upgrade

July 2019

ASN issues its opinion on the safety options file for the EPR new model (NM) reactor project, for which the new technical configuration is called EPR 2: ASN considers that the general safety objectives, the safety baseline requirements and the main design options are on the whole satisfactory. It takes account of the recommendations of ASN guide n° 22 relative to the design of pressurised water reactors.

The ASN opinion identifies the subjects requiring further examination with a view to a possible reactor creation authorisation application. Additional demonstrations are more specifically required with regard to the break preclusion approach for the main primary and secondary system piping, the approach for dealing with hazards, notably fire and explosion, and the design choices for certain safety systems. In any reactor creation authorisation application, EDF will therefore have to specify the additional studies and demonstrations provided in response to this opinion, along with any resulting changes to the safety options.

The EPR 2 reactor is a pressurised water nuclear reactor project being developed by EDF and Framatome. It meets the general safety objectives of the third generation of reactors; its aim is to incorporate design, construction and commissioning experience feedback from the EPR [1] reactors as well as operating experience feedback from the nuclear reactors currently in service.

To date, EDF has not identified a site for this reactor project. For the design of the reactor, EDF has adopted hypothesis chosen in order to cover a range of sites liable to host such a reactor in France.

ASN reviewed the safety options dossier with the help of the Institute for Radiation Protection and Nuclear Safety (IRSN). The opinion of the Advisory Committee for reactors (GPR) on this project was obtained in January 2018, and ASN also got observations from the public on the EDF dossier and on a draft opinion between 13th May and 2nd June 2019.

[1] *EPR reactors are currently under construction or in service at Flamanville (France), Olkiluoto (Finland), Taishan (China) and Hinkley Point (United Kingdom).*

ASN publishes the English version of its report on the state of nuclear safety and radiation protection in France in 2018

July 2019

The report is now available on ASN's website http://www.french-nuclear-safety.fr/Information/Publications/ASN-s-annual-reports

ASN requires additional reinforcement of the embankment protecting the Tricastin NPP

July 2019

In a resolution dated 25th June 2019, ASN requires that EDF carry out additional reinforcements on a portion of the Donzère-Mondragon canal embankment protecting the Tricastin nuclear power plant (NPP) and ensure that this portion of the embankment is monitored.

On 27th September 2017, ASN ordered temporary shutdown of the four reactors of the NPP owing to the risk of failure of a 400-metre long portion of the canal embankment, in the event of an earthquake, that could lead to a nuclear fuel melt accident in the reactors, while at the same time making it particularly difficult to deploy the on-site and off-site emergency management resources.

After the reinforcement of the portion concerned by EDF, to ensure that it could withstand the safe shutdown earthquake[1] (SSE), ASN approved restart of the reactors in December 2017.

EDF plans to carry out additional work on this embankment so that it can withstand the extreme earthquake[2] defined after the Fukushima accident. The resolution adopted by ASN on 25th June 2019 requires that this reinforcement work be completed no later than the end of 2022. In the meantime, it also regulates some of the actions to be carried out by EDF, more particularly:

- Tightened monitoring of the embankment.
- The steps to be taken in the event of a rise in the piezometric level[3].
- Retaining the human and material resources (backfill, construction machinery, etc.) so that the necessary work could be carried out to repair any damage resulting from an earthquake.

[1] *The SSE is the earthquake considered in the nuclear safety case of basic nuclear installations. It is calculated using a deterministic approach detailed in basic safety rule n° 2001/01 of 31st May 2001.*

[2] *ASN asked EDF to check the resistance of the existing equipment in the "hardened safety core" to an extreme earthquake. The intensity of this earthquake is greater than that of the SSE.*

[3] *Water level inside the body of the embankment.*

ASN and ASND issue a joint position statement on CEA's decommissioning and materials and waste management strategy

July 2019

Thirty-nine CEA nuclear facilities have been finally shut down or are being decommissioned. This number has been constantly rising for the past few years. Since the 2000s, ASN and ASND – the Defence Nuclear Safety Authority – have observed significant delays in the decommissioning and waste retrieval and conditioning (RCD) projects.

Given the number and complexity of the operations to be performed for all the nuclear facilities concerned, CEA defined priorities based primarily on analysis of the potential hazards, in order to reduce the risks presented by these facilities.

However, in the light of the planned timetables presented, even if there are no unforeseen events and delays in the projects, risk reduction will not be effective before a decade at best. Numerous RCD projects, classified as high-priority, require the creation or prior refurbishment of the retrieval, conditioning and storage resources for radioactive waste and materials, along with the corresponding transport operations.

Following the analysis of the CEA's file on this topic, ASN and ASND observe several weak points in CEA's strategy, notably owing to the envisaged pooling between centres, for example for managing aqueous radioactive effluents or solid radioactive waste which means that, for certain operations, there would only be a single facility. This strategy leads on the one hand to a significant rise in the number of shipments and, on the other, to considerable uncertainties regarding the availability of the radioactive materials and waste treatment, conditioning and storage facilities, as well as of transport packagings. They also note uncertainties regarding the management of spent fuels or irradiated materials, which will need to be clarified.

ASN and ASND thus submitted a number of requests to CEA with a view to remedying these weak points, consolidating its strategy and clarifying the performance schedule.

In this framework, they also ask that CEA regularly report on the progress of the decommissioning and waste management projects and that regular communication with the public be instituted, in accordance with procedures appropriate to the nature of the facilities, whether civil or defence.

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