

Regulatory Updates

Nuclear safety...

The review group issues its opinion on the evaluation of the management of bituminous nuclear waste packages requested by the Minister responsible for Energy and the ASN Chairman

September 2019

Nearly 80,000 packages of nuclear waste have been processed by bituminisation since 1966. 50,000 of these bituminous waste packages are in principle to be disposed of in the Cigéo project facility.

In its 11 January 2018 opinion on the safety options dossier (DOS) submitted by Andra for the Cigéo project, ASN expressed reservations concerning the disposal of these waste. An expert assessment was thus ordered by the Minister responsible for Energy and ASN in June 2018, in order to evaluate:

1. The scientific knowledge relating to the characterisation and behaviour of bituminous waste;
2. The pertinence of ongoing research into the neutralisation of the chemical reactivity of the bituminous waste packages;
3. The pertinence of Andra's studies aimed at modifying the design of Cigéo in order to preclude the risk of runaway exothermal reactions.

The review report on the management of bituminous waste was submitted to the authorities on 28 June 2019 and then presented to the radioactive waste producers, to the Andra, to the IRSN and to the National plan for management of radioactive material and waste (PNGMDR) Working Group in September 2019. With regard to the three subjects above, the review group considers that:

1. Additional experiments would be able to confirm the conclusions of the prior work done by CEA regarding the temperatures as of which energetic reactions can occur;
2. The industrial feasibility has yet to be proven. The group believes it unlikely that such a facility could be commissioned before 2040, but considers that studies should be continued and that it would be worthwhile re-examining the benefits of chemical dissolution of the bitumen before finally choosing which process is to be industrialised, if any;
3. The studies carried out by Andra should in the short-term lead to a design whose safety could be convincingly demonstrated.

Within the framework of the fifth edition of the PNGMDR, ASN and the General Directorate for Energy and the Climate (DGEC) will clarify the conclusions they draw from this review and the additional work to be done by the producers and by Andra in the coming years.

Flamanville NPP 1 and 2: ASN places the site under reinforced surveillance

September 2019



On 4 July 2019, the ASN Director General summoned the Director of the Flamanville 1 and 2 NPP to a hearing and asked him to submit an action plan to reinforce the management and oversight of operational activities.

He notably underlined deficiencies in the technical skills involved in certain operational activities, the high number of significant events linked to maintenance defects and contractor oversight shortcomings, poor management of certain maintenance operations and the inadequate quality of the documents transmitted to him for the ten-yearly outage inspection of reactor 1.

The reinforced surveillance decided on by ASN will notably entail additional checks, with particular attention being paid to the implementation of the action plan defined by EDF following the summons issued to the NPP Director. By means of inspections, ASN will regularly check the effectiveness of the improvement steps taken by EDF.

Three topics will be subject to particularly close examination:

- management of maintenance and operating activities and the corresponding documentation;
- management of operating experience feedback, in particular the reporting of significant events to ASN;
- EDF's oversight of safety and the priority given to safety issues in the decision-making process.

The Flamanville NPP comprises two 1300 MWe reactors, commissioned in 1985 and 1986. Reactor 2 is currently shut down for its third ten-yearly outage inspection. Reactor 3, which is an EPR currently under construction on the same site, is not concerned by this reinforced surveillance process.

Two EDF NPPs are currently placed under reinforced surveillance by ASN: Belleville-sur-Loire and Flamanville 1 and 2.



**[For more information
www.french-nuclear-safety.fr](http://www.french-nuclear-safety.fr)**

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 Aubert 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.

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

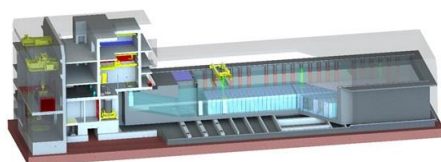
ASN issues its opinion on the safety options dossier for the planned centralised spent fuel storage pool

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.*

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).*



For more information
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