French Nuclear Safety Authority

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Regulatory Updates

Nuclear safety...

ASN nominates new Deputy Director General

September 2017

Anne-Cécile Rigail, Rémy Catteau, and Simon Liu

As of the first of September 2017, **Anne-Cécile Rigail** joins the Director-General's office as Deputy Director-General, replacing Jean-Luc Lachaume. Graduate from Ecole Polytechnique and Ecole des Mines, she was Director of the Nuclear Power Plant Department (DCN) since 2015.

Rémy Catteau replaces her as the new head of the Nuclear Power Plant Department. He was head of the Nuclear Pressure Equipment Department (DEP) from 2014 to 2017.

Simon Liu, former deputy director of the DEP, replaces him as head of the Nuclear Pressure Equipment Department.

For more information
www.asn.fr

Level 2 incident concerning the emergency diesel generator sets on 20 reactors

June 2017

ASN rated as level 2 a significant safety incident regarding the seismic resistance of the auxiliary systems of the emergency diesel generator sets of twenty 1300 MWe reactors on the Belleville, Cattenom, Flamanville, Golfech, Nogent, Paluel, Penly and Saint-Alban NPPs.

On June 20, 2017, EDF informed ASN that the lack of demonstration affected twenty reactors. ASN asked EDF to ensure that those systems be reinforced within three weeks for at least one of the two emergency diesel generator sets and within one and a half months for the second.

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

ASN and IRSN publish Guide No. 22 on Pressurized Water Reactors' design

July 2017

Drafted jointly with IRSN, Guide No. 22 gathers safety recommendations on Pressurized Water Reactors' design. It takes into account:

- The technical feedback from the new power plants projects.
- The feedback from the Fukushima-Daiichi accident and the following safety evaluations.
- International publications, including those from the Western European Nuclear Regulators' Association (WENRA) and the International Atomic Energy Agency (IAEA).

The technical positions issued in this guide are the result of several years of work and technical exchanges with the French nuclear industry. It was reviewed by the Advisory Committee for reactors (GPR), associated with members of Advisory Committee for nuclear pressure equipment (GPESPN).

The guide deals for the most part with the prevention of radiological incidents and accidents and the limitation of their consequences. It specifies the general objectives and principles of design and advises recommendations to meet the regulatory standards. The guide also insists on specific topics such as the defence in depth concept, the safety barriers and the storage of nuclear fuel assemblies.

Guide No. 22 thus constitutes a reference on the design of new reactors and a tool enabling to display, at international levels, the French way in matters of nuclear safety.

The ASN Guide No. 22 is available at the ASN Website.

For more information
www.asn.fr

ASN imposes temporary shutdown of the Tricastin NPP after insufficient seismic resistance

September 2017

In a resolution dated September 27, 2017, ASN required that EDF temporarily shut down the four reactors of the Tricastin nuclear power plant as rapidly as possible.

This decision originates from the notification EDF made to ASN on August 18, 2017 of a significant safety event relating to a risk of failure of a part of the embankment of the Donzère-Mondragon canal with regard to the most severe earthquakes studied in the nuclear safety case. ASN has since then requalified the significant event at level 2 on the INES scale.

The resulting flooding could lead to a nuclear fuel melt accident in the four reactors of the Tricastin NPP and would make it particularly difficult to implement on-site and off-site emergency management resources.

At the request of the ASN Commission, EDF was given a hearing on September 26, 2017 and provided additional data. ASN considers that these data are unable to rule out the risk in the short term.

Tricastin NPP

EDF is required to conduct further geotechnical investigations in order to make a more detailed characterisation of the composition of the part of the embankment concerned and carry out the necessary reinforcement works before the reactors are restarted, to ensure that the embankment is able to withstand the maximum earthquake considered in the nuclear safety case.

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

ASN issues its opinion on the anomaly of the Flamanville EPR reactor pressure vessel

October 2017

On October 10, 2017, ASN issued its opinion on the anomaly in the steel used for the Flamanville EPR reactor pressure vessel lower head and closure head. ASN considers that this anomaly is not such as to compromise the commissioning of the reactor pressure vessel, provided that specific checks are carried out during operation of the installation. As the feasibility of these checks cannot at present be confirmed for the closure head, ASN considers that the current closure head cannot be used beyond 2024.

Between July 10 and September 12, 2017, ASN made its draft opinion on this anomaly and its examination report available to the public, along with the opinion of its Advisory Committee for nuclear pressure equipment.

Flamanville NPP

Following this consultation of the public and that of the High Council for the Prevention of Technological Risks, ASN supplemented its opinion in order to clarify certain points concerning the justification approach, the applicable regulatory framework and the reliability of the data supplied by Areva NP and EDF.

The commissioning of the Flamanville EPR reactor pressure vessel will also require authorisation, issued more specifically in the light of the results of a hydrotest on the entire main primary system.

ASN, with the support of IRSN, is also continuing with its review of the Flamanville EPR reactor commissioning authorisation application, as and when it receives the files transmitted by EDF.

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

ASN gives a level 2 to an event leading to a risk of loss of heat sink for 29 nuclear reactors

October 2017

ASN gives a level 2 rating to a significant safety event regarding a risk of the loss of heat sink for 29 reactors. The reactor heat sink could be lost owing to the unavailability of the pumps of the reactor essential service water system (SEC) as a result of internal flooding following an earthquake-induced rupture of the piping supplying water to the fire protection network (JPP system) and the raw water filtration network.

The insufficient earthquake resistance of a JPP pipe was initially detected by EDF in the Belleville-sur-Loire NPP. Additional investigations requested by ASN and performed in early June 2017 revealed that several sections of these pipes were degraded, with thicknesses less than the minimum thickness required for earthquake resistance. This degradation is the result of corrosion which may have developed because of a lack of appropriate preventive maintenance.

EDF took thickness measurements on piping sections of other systems situated in the same areas as the JPP pipes, from early July to the end of September 2017, on all the EDF NPP reactors potentially concerned. Following this campaign and then the earthquake resistance analysis of the piping concerned, EDF declared on 10th October 2017 that 20 reactors were concerned by a risk of total loss of heat sink. This event is rated level 2 on the INES scale. Nine other reactors are concerned by a risk of partial loss of heat sink, which is a situation rated level 0.

Repairs have been initiated, under the supervision of ASN, on the piping, so that there is a secure SEC train for all the reactors concerned.

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

Follow-up to the IRRS international audit mission

October 2017

From October 1 to 9, ASN received an IAEA delegation responsible for follow-up to the Integrated Regulatory Review Service (IRRS) international audit mission carried out in 2014, concerning all of the activities regulated by ASN. The IAEA report on this mission, published by ASN in 2015, issued 46 recommendations and suggestions for which application and implementation was to be checked by the delegation present over the past few days.

With 40 recommendations and suggestions applied, the IAEA delegation concluded that France had significantly reinforced the framework of its regulation and oversight of nuclear safety and radiation protection. IAEA did however point out that ASN needed to demonstrate vigilance with regard to the question of human resources, in the light of the safety issues facing nuclear facilities in France.

IAEA Integrated Regulatory Review Service IRRS

At the closing session of this follow-up mission, Mr. Rzentkowski, Director of the Division of Nuclear Installation Safety at IAEA, highlighted the fact that ASN is "*an efficient nuclear safety and radiation protection regulatory body as proven by the conclusions of the mission*". He also recalled that France is so far the first country to have completed two full IRRS cycles, after the respective missions of 2009 and 2014.

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

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