

Regulatory Updates

Nuclear safety...

Significant safety event during operations to drain the reactor 2 primary system on the Golfech NPP

December 2019



The Golfech NPP

On 11 October 2019, EDF reported a [significant safety event to ASN concerning non-compliance with the general operating rules during operations to drain the reactor 2 main primary system on the Golfech NPP](#).

On 8 October 2019, the reactor was being shut down so that part of its fuel could be renewed. A field operator went to the reactor building to open the pressuriser vent, in accordance with procedures. This operator was interrupted during the course of his work and the vent was in fact not actually opened. Assuming that the vent had been opened, the operators in the control room began the scheduled primary system drainage operations, although with vent closed, leading to depressurisation of the system. In this configuration, the water level measurements in the primary system are no longer representative of the actual situation.

Eight hours later, an operator saw that the water level in the primary system was not changing as expected. After analysis, the operating team interrupted drainage of the system and sent a field operator to the reactor building to check the position of the pressuriser vent. Finding it to be closed, they requested that it be opened, although without first carrying out the steps required by the general operating rules.

This opening led to uncontrolled water movements in the primary system and a drop in the water level. The licensee then made up the water level in the primary system.

The decisions made and the steps taken by the licensee were hasty following the discovery of non-opening of the vent, with no preliminary assessment of the actual and potential impacts and with the reactor in a configuration non-compliant with the general operating rules. The subsequent analysis performed by the licensee, at the request of ASN, showed that cooling of the fuel assemblies in the reactor pressure vessel was maintained during the event.

This event took place a few days before an in-depth inspection carried out on the Golfech site by 13 ASN inspectors and 11 IRSN experts. This inspection was an opportunity for ASN more particularly to check the steps taken by EDF to ensure the safety of continued reactor shutdown operations and reinforce the monitoring of control activities following this event. ASN also asked EDF to assess the consequences of depressurisation on the primary system equipment, which led to additional inspections being performed on the facilities. Their results were analysed by ASN as part of its examination of the reactor 2 restart approval request, which was granted on 21 November 2019.

Owing to the degraded safety functions and the potential consequences for nuclear safety, notably linked to errors in the management of the event and the monitoring of the operation activities, as well as to the fact that insufficient lessons had been learned from operating experience feedback, **the event was rated level 2 on the INES scale.**

Significant safety event concerning defective electrical components at reactor 2 of Penly NPP

December 2019

On 18 December 2019, EDF reported a [significant safety event relating to defective electrical components which put the backup systems of the Penly NPP reactor 2 out of service](#). In the context of the Penly NPP reactor 2 refuelling and maintenance outage which began on 27 July 2019, EDF replaced the moving parts of two redundant electrical panels (channels A and B). During restarting of the reactor backup and cooling pumps for post-work requalification, when the reactor was still shut down, anomalies led EDF to detect the malfunctioning of four electrical components as of 12 October 2019.

On 10 December, with the reactor still shut down but refuelled, EDF conducted investigations to determine the origin of the faults. The investigations revealed that 28 components replaced on the electrical panels were potentially defective. EDF then deemed the pumps of the backup and cooling systems of the reactor concerned by the anomaly to be unavailable.

On account of the deterioration of the safety function due to the installation of defective components on electrical panels important to safety, and deficiencies in the licensee's organisation - as much in the preparation of the maintenance activities as in the late analysis of the successive faults - **the event was rated level 2 on the INES scale.**

In the wake of the Teil earthquake in November 2019, ASN takes stock of the earthquake resistance of the French NPPs

December 2019

On 11 November 2019, at about 12h, an earthquake struck the Rhone valley. The facilities concerned were the nuclear reactors of the Cruas-Meysses and Tricastin NPPs, as well as the Orano facilities in Tricastin. According to the licensees concerned, no damage has been identified. Nevertheless, ASN asked EDF to verify whether the values recorded exceeded the thresholds beyond which a more in-depth examination of the facilities is needed, requiring shutdown of the reactors. This is not the case for the Tricastin NPP, which is further from the earthquake's epicentre. However, one of these thresholds was reached for the Cruas-Meysses NPP, which led EDF to decide to shut down the reactors on this site.



The Cruas-Meysses NPP

In the wake of this event, ASN takes stock of the earthquake resistance of the French NPPs, answering the following questions on [ASN web site](#):

- When designing a nuclear power plant, how do you determine the earthquake intensity the plant must be able to withstand?
- Have the lessons from the Fukushima accident been taken into account?
- Are the earthquake levels reassessed during the lifetime of a nuclear installation?
- What are the consequences of the Teil earthquake on the Cruas NPP?
- What are the consequences of the Teil earthquake on the Tricastin nuclear site?
- Will the Teil earthquake have any consequences on the resistance criteria of the Tricastin and Cruas NPPs?

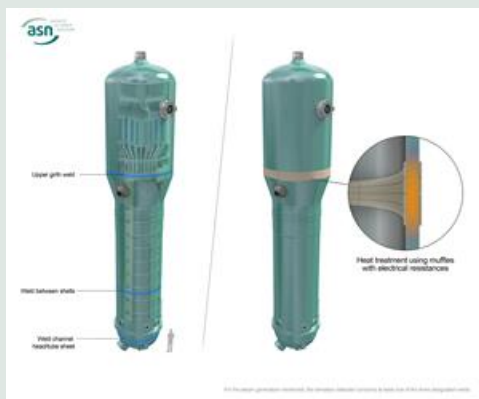
 [For more information www.french-nuclear-safety.fr](http://www.french-nuclear-safety.fr)

Manufacturing deviation at Framatome stress-relieving heat treatment of welds

November 2019

On 9th September 2019, EDF informed ASN of a deviation concerning the manufacturing of nuclear pressure equipment installed in its reactors, and primarily steam generators (SGs). During the stress-relieving [heat treatment](#) applied to the welds made to assemble nuclear pressure equipment components, the required temperature range has not been respected over the entire area to treat.

Framatome, the manufacturer, discovered that the process implemented in its Saint-Marcel plant was not giving sufficient control over the uniformity of temperatures in the circumference of the treated welds.



Eighteen SGs manufactured by Framatome and installed on the in-service nuclear reactor fleet as from 2008 are concerned. These SGs were installed on the reactors of Bugey 3, Fessenheim 2, Dampierre 4, Blayais 3, Blayais 4, Paluel 2 and are currently being installed on Gravelines 5. Some twenty items of equipment still in the manufacturing process or undergoing their conformity assessment, including the SGs and pressurizers of the Flamanville EPR reactor, are also concerned. This deviation in the stress-relieving heat treatment conditions can lead to changes in the metallurgical characteristics of the materials with respect to the hypotheses considered in the design files, or insufficient relief of the mechanical stresses induced by welding.

ASN carried out two inspections on September 18th to check the extent of the equipment items concerned and the methods of addressing the deviation. The inspection follow-up letters are posted on the [ASN web site](#).

EDF and Framatome have sent ASN justification documents showing that the integrity of the equipment was not called into question. These documents have been examined by ASN with the technical support of IRSN.

ASN has requested complementary information concerning a SG of the Fessenheim power plant reactor No. 2, on account of its particularities.

On the basis of these elements and their analysis, ASN considers that the reactors in question can continue to function as is.

ASN has asked EDF to take advantage of the scheduled outages of these reactors - which will be staggered over the period until summer 2020 - to characterise the welds concerned, in particular through non-destructive tests and thickness measurements, in order to confirm the hypotheses adopted by EDF.

EDF must also undertake a work programme on mock-ups to characterise in detail the operations performed during manufacture and the phenomena observed for the various equipment configurations. The conditions of these investigations and tests shall be monitored by ASN and its technical support organizations.

Lastly, ASN has asked the manufacturer and the licensee to analyse the causes of this situation, which results primarily from inappropriate qualification of the heat treatment process prior to its implementation.

Olivier Gupta elected Chair of WENRA

November 2019

Olivier Gupta, ASN Director General, has been elected Chair of [WENRA](#) (Western European Nuclear Regulators' Association), by his European peers. He will be assisted by two Vice-Chairs, Petteri Tiippana, Director General of the Finnish nuclear regulator (STUK), and Mark Foy, Chief Inspector of the United Kingdom's Office for Nuclear Regulation (ONR).

His ambition for the three years of his mandate will be to implement the new strategy adopted by the association and, in particular:

- To pursue the development and updating of the "reference levels" with a broader vision of safety that takes account more specifically of the interfaces between safety and security;
- Beyond the "reference levels", to develop new tools to harmonise the positions of the nuclear safety regulators on high-stake issues;
- To open up WENRA to the large non-European nuclear countries, by creating a status of associate member.

 [For more information](#)
www.french-nuclear-safety.fr

ASN promotes initiatives in favour of justifying imaging examinations in France

November 2019

In France, medical applications represent the primary source of artificial exposure of the public to ionising radiation. This exposure is rising, mainly owing to the increasing number of computed tomography examinations.

Imaging examinations have proven their benefits for both diagnosis and treatment. The issue at stake however is to avoid examinations that are not really necessary or that offer no real benefit for the patients and the results of which could be obtained by other available, non-irradiating techniques.

To coincide with the International Day of Radiology on 8 November 2019, a campaign was launched in 19 European countries to make health professionals more aware of the appropriate use of medical imaging examinations. ASN is a participant in this initiative by [HERCA^{\[1\]}](#) (Heads of the European Radiological Protection Competent Authorities). On the [asn.fr](#) website, it lists the resources promoting the justification and pertinence of imaging examinations in France, made available to patients and health professionals by the various institutions, learned societies and patient or user associations.

Justification lies at the heart of each of the two action plans to control the doses delivered to patients during medical imaging, which were drawn up by ASN in 2011 and 2018, in consultation with the departments of the Ministry for Solidarity and Health and with the health professionals. As the first principle of radiation protection enshrined in the Public Health Code, justification aims to ensure that the patient derives benefit from the examination, as compared with the risks inherent in exposure to ionising radiation. It is similar to the medical notion of pertinence, which aims to carry out "the right procedure for the right patient, at the right time", taking account of the trade-off between benefits and risks.

[1] HERCA brings together 56 radiation protection Authorities from 32 European countries. HERCA's current fields of activity include medical and veterinary applications, emergency preparedness and response, radon and naturally occurring radioactive materials as well as research and industrial sources and practices.

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