

**PF-5**

## **Complementary Safety Assessments of the French Nuclear Power Plants and related R&D issues at EDF**

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### **Abstract**

Complementary Safety Assessments (CSA) made on French nuclear power plants follow on from the Fukushima accident in Japan and fulfil the requests from the French Prime Minister to the French Safety Authority (ASN), along with that from the European Council. The consistency of both procedures is ensured by the common reference to specifications of the Western European Nuclear Regulator Association (WENRA), and by the subsequent organisation of “peer reviews” between safety authorities. On 15 September 2011, EDF submitted 19 complementary safety assessment reports to the ASN. These reports consist of reassessing the existing and forthcoming power plants, and thus ensuring safety margins exist for facilities in terms of: seismic and flooding risks, the simultaneous loss of the cooling source and electrical power supply, the consequences of serious accidents and the rules applied in the subcontracting field. Drafted for the site as a whole, these assessments consist of taking into account extreme situations beyond those considered during the design and subsequent safety reviews of nuclear facilities.

The ASN published its opinion on CSAs on 3 January 2012, based on the analyses by the French Institute of Radiation Protection and Nuclear Safety and the Permanent Groups of Experts. These analyses show a satisfactory level of security for EDF’s entire nuclear fleet. EDF put forward additional measures to the ASN, pushing hypotheses further, in a bid to further increase the safety levels at power plants. The ASN underlined that the CSAs do not show any significant failures in defining the level of external attacks considered (earthquake, flooding, etc.). It also acknowledged and approved the procedure put forward by EDF, more specifically the “hard core” concept and the FARN system.

The “hard core” will be made up of a restricted number of the plant’s structures, systems and components that can withstand attacks that go beyond provisions and that can deal with situations studied in connection in with CSAs (attacks above the levels considered in the safety standards, loss of cooling functions or long-term electricity sources affecting several facilities on the same site).

The Rapid Response Nuclear Task Force system, known as FARN, has been organized by EDF to enhance its management strategy in terms of accidental situations thanks to a national system able to quickly provide material and human aid to a site in great difficulty. This system started implementation during 2012.

After the publication of the ASN technical instructions in June 2012, EDF has finalised an action plan that will most likely take place over several years, dealing with additional studies and changes decided upon.