

N260. Present and Future Safety Issues for Électricité de France (EdF)

EdF has 54 PWR nuclear units in operation with experience of more than 500 reactor-years. In terms of collective exposure, the 1992 average annual dose was 2.36 man-Sv. An ALARA approach is being implemented in all plants to reduce this to a value of around 1.5. A better value is expected for 1993.

During the past four years, there have been no accidents in French nuclear power plants. EdF realized that the best way to reach a high level of safety is to analyze all safety significant events in operation, to find their root causes, and to take the appropriate corrective measures.

In 1991, some corrosion on the vessel head penetrations was discovered. This led to large-scale actions--financially, technically, and in terms of human resources. The best experts were consulted.

In terms of management of the nuclear generation system, EdF's strategy has been costly, particularly due to the loss of availability. But this strategy--with management concentrating on defense-in-depth (e.g., inspection, leak detection, anti-ejection systems, repairs and replacements) remains an exemplary one from a safety viewpoint.

Damage has also been encountered on steam generator tube bundles, but EdF's surveillance policy has so far made it possible to avoid a tube rupture. All their plants are equipped with a nitrogen-16 leak detection system.

A first steam generator replacement took place in 1990, and a second was carried out at the end of 1993. EdF also reassessed its replacement strategy in 1992, with a view to increasing the quality of operation and achieving a high level of availability in units fitted with new equipment.

Taken from, "Present and Future Safety Issues for Electricité de France," by P. Tanguy, Nuclear Engineering International, pp. 54-55, Dec. 1993.