

"It is difficult to build a nuclear power plant."

François Fillon, French Prime Minister, 30 May 2008

The problems experienced on both the EPR construction sites of Olkiluoto in Finland (OL3) and Flamanville in France show how difficult the building of a nuclear power plant can be, given the level of specification to meet and the skills required. In both cases problems have started at early and supposedly less complex stages of construction such as the pouring of concrete and the welding of steel. Yet the companies involved – Areva as supplier, Bouygues as subcontractor for construction works, EDF – are considered among the best in the field. Nuclear reactor construction proves hard to manage even for the cream of the French nuclear and construction industry.

The construction of the first EPR started in October 2005 in Finland, and problems began very soon. Two and a half years later, the project is at least two years behind schedule. The Finnish nuclear safety authority STUK made clear, highly critical statements about the supplier's responsibility for the delay. In a report published in July 2006, STUK considered that "the time and resources needed for the detail design of the OL3 unit were clearly underestimated when the overall schedule was agreed upon", and that "major problems involved project management", pointing to the insufficient guidance of subcontractors with no prior experience in nuclear power construction. STUK also comments that "the incompetence in the constructor role becomes obvious in the preparations for concreting of the base slabs."

In early 2007, STUK had listed 1,500 safety and quality problems with the project, including critical ones, and considered it possible that all the problems had not been detected. Most pieces of the pressure vessel, the pressuriser and steam generators had been badly manufactured. The future operator, TVO, has also complained, its project manager recalling in February 2008 that at the time, Areva had submitted only half the plans for the EPR.

The work building the second EPR started two years later in Flamanville. There again, problems were evident from the beginning. On 3 December 2007, on the very first day of concrete pouring on the site, an inspection carried by the French nuclear safety authority, ASN, concluded that the quality control procedures for the base slab concrete were "unsatisfactory". Some basic specifications had not been respected and the right procedures had not been followed for concrete mixing, pouring, and test sample filing. Another inspection, ten days later, showed erroneous assumptions and violations of regulations as regards the potential interaction of the building works with the two operating units, suggesting a deeper lack of basic safety culture.

Further inspections carried on during the first half of 2008 found a series of anomalies that led ASN to point to "a lack of rigor in the construction of the building site, difficulties in the management of external subcontractors and organisational deficiencies." Finally, on 23 May 2008 ASN took the very unusual decision to stop the concreting of all safety relevant parts of the plant. A long series of inspection reports listed very serious errors affecting the quality of concrete – too porous in some parts; the quality of repair of subsequent cracks; the incorrect following of specifications in welding etc. On 17 June 2008, ASN authorised a conditional restart of the concrete work, based on a commitment by EDF to upgrade quality control and organisation.