25/06/2013
France

Production equipment [1]

Cooling systems replacement at the Civaux and Chooz nuclear plants

- A cooling system

Cooling systems replacement at the Civaux and Chooz nuclear plants [2]

In partnership with CIAT, SPIE Nucléaire was awarded a contract to replace 28 cooling systems for the N4 generation (1,450 MW) units for the French nuclear energy network.

EDF's nuclear energy engineering centre in Marseille awarded a contract to the SPIE Nucléaire (leader) / CIAT consortium to enhance the power of its existing cooling systems to meet new environmental directives related to liquid coolants. With a value of approximately €11 million divided nearly equally between SPIE Nucléaire and CIAT, the contract caps off a long series of efforts to diversify SPIE Nucléaire's electromechanical activities, particularly in climatic engineering.

Technical characteristics of a cooling system

- Cooling power: more than 200 kW
- Power consumed: more than 85 kW
- Mass: about 2.5 metric tons
- 1 semi-hermetic rotary screw compressor
- 1 evaporator and 2 separate condensers (produced by CIAT)

This material is crucial for nuclear safety and vulnerable to damage caused by earthquakes and extreme heat

SPIE is in charge of

- Assembly engineering
- Decommissioning old systems and installing new systems,
- Attaching and modifying electrical wiring, piping and instruments
- Installing substitute equipment and operating it during the project
- Identifying HFC leaks (coolant leaks)
- Tests and commissioning, as well as training EDF staff

CIAT is in charge of

- Thermal, mechanical and dimensional assessment
- Earthquake, performance and durability tests
- Manufacturing exchangers
- Assembling the systems
- Tests of the systems upon assembly
- Onsite tests and commissioning, as well as training EDF staff

Analysis and planning began in late March 2011, lasting 11 months. Depending on how each unit can be shut down, replacement operations should take between 25 to 40 days, with the last cooling system scheduled to be installed in late 2014.

Other projects [3]

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SPIE Nucléaire [4]

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