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EDF Supply of a pilot unit for water treatment

- IOWater - Our projects : news and update -

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The National Training Center for Water Professions (CNFME) designs and develops training or testing pilot units in all the water treatment fields (drinking water, wastewater, industrial water, etc.).

In 2007, this past and recognized experience enabled it to provide an appropriate answer to the Research and Development Division of EDF, which wished to be equipped with a pilot unit for the study of very specific characteristics.

Indeed, the search for optimizing the cooling systems of its nuclear power plants led EDF to have variable water quality, with regard either to its mineralization (minimum TAS of 2°F) or to its pH, while maintaining a low level of turbidity (0,2 NFU).

A two-fold treatment process unit has being designed, sized, built and developed. Taking into account the constraints of floor space requirement (pilot unit that can be transported and installed in a building), the pilot unit is made up of three parts : a module for preparing reagents, a module for treatment and a module for storage of treated water (2 days of autonomy). It can provide the process water quantity necessary for EDF experiments with an uninterrupted flow of 100 l/h.

In order to meet the requirements for uninterrupted production, IOWater worked out thorough automation for the pilot unit operation, control and monitoring. Several specific automated systems were designed : water heating of +8°C ±1°C (variable), pH regulation to setpoints using lime or sulphuric acid, cleaning of the sand filter and shutdown.

The pilot unit must meet strong safety requirements which need a continuous monitoring of the risk of failure and of the automatic shutdown in case of alarm.

The main parameters of the pilot unit operation and output water quality are continuously recorded using measurements provided by sensors (pressures, flows, pH, turbidity and follow-up of pump operation).

After an adjustment phase at the CNFME Study and Test Unit in La Souterraine, the pilot unit was provided to the EDF nuclear power plant of Nogent-sur-Seine where the IOWater experts started it and trained the personnel in charge of its operation.

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