



France

Chemical cleaning of an air-cooled heat exchanger for a nuclear plant's pool water

Descaling a cooling tower by chemical circulation

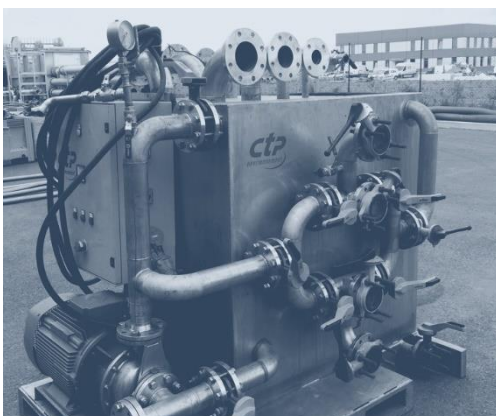
Chemical cleaning of an air-cooled heat exchanger for a nuclear plant's pool water

CTP environnement's teams were contracted to clean a 12 m (39 ft) long and 4 m (13 ft) high heat exchanger, which equated to approximately 2 tons of residue, primarily made up of calcium carbonate (CaCO_3).

CTP environnement conducted an on-site survey to confirm the estimated overall quantity of limescale, taking account of a significant, but very uneven level of scaling, the lack of visibility of the tube bundles in the pool and the wide variety of metals used (carbon steel, stainless steel, aluminium).

In order to better dissolve the limescale in the circulation areas, CTP environnement opted for chemical cleaning rather than mechanical descaling for the following reasons:

- The lack of effectiveness of mechanical methods given the quantities of limescale.
- The residues inside the tube network and on the outside of the bundles could not be accessed using mechanical methods.
- The risk of damaging the tube bundles



Hydraulic circulation tests prior to the operation assessed not only the leak tightness of the temporary circuit installed for the operation, but also that of the heat exchanger (circuit status diagnostic) to be rendered compliant.

CTP environnement maintained permanent analytical monitoring to measure the effectiveness of the process and to check the harmlessness of the metallurgy. Once satisfactory results were obtained, the operation was completed by draining, rinsing, neutralisation and effluent disposal.

The operation, performed outdoors during winter, allowed 2 tons of limescale to be removed. This service enabled CTP environnement to showcase the benefits of cleaning using chemical circulation for this kind of application:

- Far more effective descaling, controlled by analytical monitoring,
- Safe and secure operating conditions,
- A broadly optimised period of operation