Cooling Water Treatment in a Thermal Power Station

Case Study

Ozonia – keeping abreast with time

Treatment of Power Station Cooling Water

Installed container plant

Ozonia Switzerland and a water treatment company have successfully installed and commissioned a turnkey, fully assembled, containerised ozone system in a large Thermal Power Station.

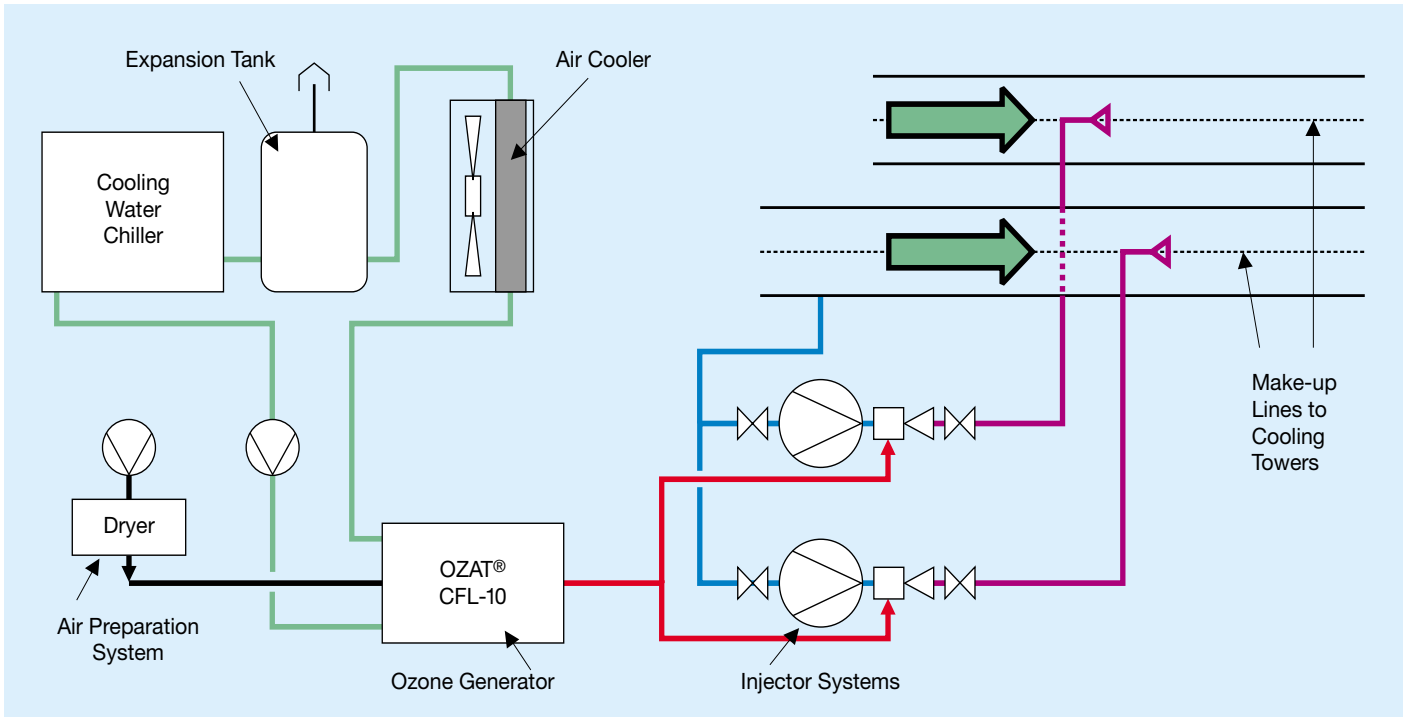
The ozone produced by the plant will be used to treat the raw make-up water being fed to the cooling towers and to compliment the proprietary biocide dosing program being used in the cooling system at the moment.

The ozone, in conjunction with the biocide will represent one of the most powerful controllable disinfection systems ever used on a cooling system and will provide protection against legionella and similar undesirable micro-organisms found in cooling towers.

In addition to being one of the strongest oxidant known, ozone provides an environmentally favourable disinfectant system producing no undesirable by-products.

The stand-alone type plant consists of one of Ozonia's larger standard OZAT® ozone generator type CFL complete with an integrated power supply system; a feedgas preparation unit with compressor and dryer; an ozone contacting system made-up from motive pumps, high efficiency injectors and special in-line diffusers installed in the make-up lines; an independent cooling system and control system. The plant, which is designed for automatic service, has been fitted with a modem link system for remote monitoring and analytic work.

In addition to the container plant, Ozonia have also supplied vent ozone destruct systems and ozone analysers to be installed at strategic places in the power station.



Ozone plant process diagram

Power Station Data

Number of towers	2
Total water volume	5000 m^3
Make-up volume	1000 m^3/h
Make-up source	Reservoir
Make-up treatment	Filter/O_3

Ozone Plant Statistics

Ozone rating	4.2 kg/h
Ozone concentration	3 – 5 wt %
Feedgas	Dry air
Regulation range	5 – 100 %
Motive flow	125 m^3/h
System pressure	3 bar (g)
Control	PLC system with manual override
Electrical rating	250 kVA
Mains feed	3 x 400 V
Mains frequency	50 Hz
Container	GRP
Dimensions:	
Length	6650 mm
Width	3650 mm
Height	3500 mm
Weight	15000 kg

View in the container

Ozone injector

Ozone has also been applied successfully to industrial type cooling water systems with resultant improvement in operational efficiency due to increased heat transfer, reduced system corrosion, improved environmental impact and reduced ongoing chemical expenditure.

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