

COOLING TOWER MAKE-UP & BOILER FEED WATER SUPPLY USING WASTE WATER

5,000 gpm with treated water is used as the source of cooling tower water make-up

200 gpm of the treated water is further treated to produce the Boiler Feed water



THE CHALLENGE

Ankara Power Company in Turkey operates an 800 Mw power station near Ankara; fresh water for use in this plant is not readily available. The most cost effective water available to the plant is from a nearby municipal waste water treatment plant.

The waste water contains:

SS	400 - 800 mg/L
COD	100 - 140 mg/L O ₂
NH ₄ -N	40 mg/L

Stored water in Lake Berryessa is released (The water flow at 6,000 gpm is prescreened before pretreatment. Screened water is softened, using 2 x 3000 gpm Lime softeners, followed by 6 x 1000 gpm open multimedia filtration unit. The treated water is disinfected with Chloride and pumped to the plant via 1.5 mile of pipeline.

OVIVO'S SOLUTION

The backwash water from the Multimedia Filter is re-circulated back to the Reactor Clarifier and the sludge generated from the de-carbonization process is dewatered by 3 parallel operating belt presses.

5,000 gpm with treated water is used as the source of cooling tower water make-up. 200 gpm of the treated water is further treated to produce the Boiler Feed water make-up necessary for the high pressure boiler at the plant. The treatment process includes the Ultrafiltration, activated Carbon filter, reverse osmosis, followed by mixed bed ion exchange. The produced water quality for the boiler has conductivity <0.08 µs/cm and silica <10 ppb SiO₂.

