

Aigües de Barcelona's Commitment to Water Quality Supported by Real-Time THM Data



Aigües de Barcelona (AGBAR) provides drinking water to more than 3 million people across the Barcelona metropolitan area from their Sant Joan Despí Drinking Water Treatment Plant (DWTP), with a capacity of 4.5 cubic meters per second.

To effectively meet the drinking water demands across their service area, AGBAR purchases additional water, approximately 50% of the volume they supply, from Aigües Ter-Llobregat (ATLL). AGBAR is certified by the ISO 22.000 standard (Preventive Risk Management System) and sets water quality targets for the purchased water from ATLL. Water quality provisions include all the parameters regulated by the European Union (EU) Directive 98/83/CE and special focus is given to trihalomethanes (THMs).

Operational Profile

THM values at the Sant Joan Despí DWTP typically range from 10 to 25 µg/L; however, values can significantly increase up to 80-90 µg/L in remote zones of the 4,700 km pipeline throughout the distribution network. THM fluctuations are dependent on the season of the year, the quality of the surface water, the quality of the additional water purchased from ATLL, and the residence time of water in the distribution network.

The frequency of laboratory sampling and analysis proved inadequate for AGBAR to understand the real-time THM levels within its water distribution system at any given moment.

Since 2014, AGBAR has been using real-time THM data from AMS's online THM analyzer (THM-100™) to manage disinfection byproducts (DBPs) within its extensive network. AGBAR uses five online THM analyzers in total:

- (1) unit monitors THM levels in water discharged from the Sant Joan Despí DWTP to predict THM formation potential and levels in the distribution network 72 hours after treatment.
- (1) unit monitors THM levels, at 72-hour residence time, in a storage tank containing treated water from the Sant Joan Despí DWTP.
- (2) units monitor water supplied by ATLL from two of their drinking water treatment facilities.
- (1) unit monitors THM levels in a remote tank that holds the water supplied by ATLL's drinking water facilities.



Aigües de Barcelona Sant Joan Despí Drinking Water Treatment Plant

The Benefit of Implementing Online THM Analyzers

The online THM analyzers have enabled AGBAR to readily identify rapid changes in water quality so remedial actions can be taken. When AGBAR is experiencing low THM levels, treatment is adjusted, and a lower percentage of water is treated through the RO and/or aeration systems.

The residence time of treated water in the network and storage tanks can also be reduced and where feasible, lower re-chlorination doses can be used. Depending on THM levels, various water blending schemes can also be implemented. Combined, these process optimization measures have led to significant cost savings for the utility.

Online THM analyzers have played an important role in AGBAR's compliance strategy. Using the THM-100 analyzers has helped the utility optimize its treatment processes, assist in monitoring water quality at handover points from its water supplier, and reduce related expenses while ensuring DBP regulatory compliance. In addition, the online THM analyzers have proved essential in AGBAR's preventive approach to water quality management.