

Anglian Water takes an innovative approach to reduce algae growth

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- ✔ Reduction of algae growth
- ✔ Access to water quality data in real-time

Alton water treatment works

Anglian Water provides drinking water to more than four million customers and water recycling services to almost seven million. The water company covers the largest geographical area in England and Wales. Anglian Water's Alton Water Reservoir and treatment works treat up to 10 million Imperial gallons (42,000m³) of water a day. Water from the reservoir undergoes a robust treatment process before being delivered to customers' taps.

Algal blooms are common in large reservoirs and can cause high levels of turbidity in the raw water, put additional pressure on the treatment process and ultimately reduce the amount of water able to pass through the treatment process at a given time.



Figure 1: Anglian Water's Alton Water Reservoir and treatment works treat up to 10 million Imperial gallons of water a day.

To provide additional resilience to the treatment process, the utility company began exploring facility improvement, including a partnership with LG Sonic to apply its ultrasound technology. The project team carried out the following initial research to identify the required solutions:

1. @one Alliance Process Engineers and Anglian Water Scientists carried out extensive water quality sampling to further understand the quality of the raw water.
2. An extensive CFD modelling carried out at the DAF plant and on-site hydraulic modelling to understand the capacity of the treatment works.
3. The specialist contractor – @one Alliance met with LG Sonic and discussed their requirements for the treatment works.

The project team needed to establish whether LG Sonic could understand and meet the required contractual and safety standards and whether their technology and products could deliver the project successfully. Once the initial research work was completed, solutions were identified, and work was undertaken.

A package of measures were identified both within the catchment and at the treatment works including the installation of 13 ultrasonic floating systems called MPC-Buoys.

Ultrasonic buoys

The MPC-Buoy systems allow the monitoring, prediction and control of algae blooms. They were delivered by LG Sonic as a flat package to the treatment works and were assembled on site before being placed in the reservoir.

Once the installation was completed and before being placed in position, the devices were placed off-site to allow the panels to be loaded and to check that all signs were set and communicating with LG Sonic. Once this was completed, the systems were placed in position and started up.



Figure 3: The Alton WTW supplies water to 92,214 properties in the Suffolk area, United Kingdom.



Figure 2: MPC-Buoy unit installed in Anglian Water's Alton Water Reservoir to monitor and control algal blooms.



Figure 4: LG Sonic ultrasound technology controls algal blooms without using chemicals.

Since the installation of the MPC-Buoy systems in Alton Water Reservoir and the implementation of additional control measures in the upstream catchment area, Anglian Water has started to see a reduction in algal blooms which minimises the extra pressure on the treatment works. This, in combination with modifications and improvements at the treatment works has given greater confidence in the plants ability to treat up to its full design capacity.

These findings are based on only one season of installation and will be monitored closely to quantify the true benefits of installing the ultrasound technology.



Figure 5: Alton Water Sports Centre uses the Alton reservoir for sailing and other water sports.