

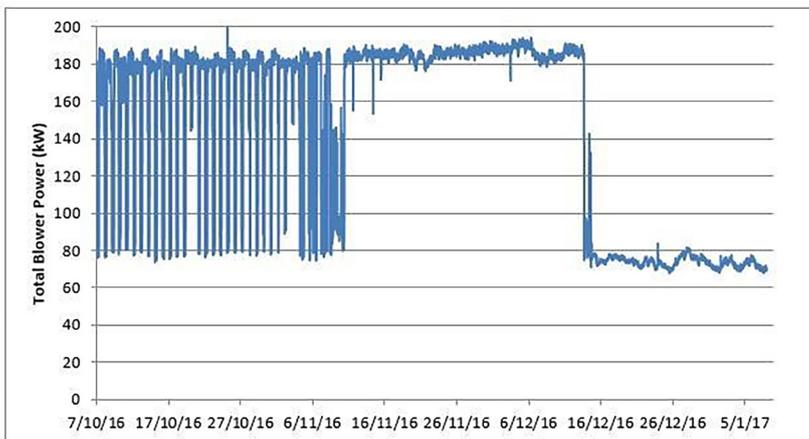
CASE STUDY:

EXTENDED ANOXIC ZONE AND CONTROL UPGRADE

The site consists of two ASPs with Fine Bubble Diffused Aeration. The original ASP was refurbished in 2007 and again in 2013 due to biological fouling. The second ASP was built in 2015 to replace very old filter beds.

Prior to the second ASP being brought online, the old ASP was producing very low ammonia as this was required to 'prop up' the old filter beds and keep the site compliant. An aeration survey conducted by Air Technology at the time showed treatment was usually complete by two thirds of the way along the lane, even during high load periods, with the **exit ammonia levels being less than 1% of the consent limit**. The aeration survey also showed very high nitrate levels in the aeration lanes despite there being an anoxic zone in the front of the lane, Air Technology identified that the anoxic zones were ineffective due to back mixing from the aerobic zone.

Air Technology returned once the new ASP had been commissioned and it was determined that this had been exacerbated with the new ASP also over treating due to poor control and difficult maintenance on DO meters.



Working with the site Air Technology started by **adding control to the first zone of the ASP** allowing it to act as an extended anoxic zone when required and reducing nitrate levels whilst a new burst mixing system was implemented to keep solids in suspension during anoxic periods. **DO meters were replaced and installed in positions which made maintenance easier**, whilst the control system was set to run on average DO across the lane. Finally, Air Technology used their proprietary diffuCLEAR acid cleaning process to remove biological build up on ASP 1's older diffusers and extend operating life.

The results were instantaneous and can be seen on the graph above. **Energy savings of 692,040kWhr a year** have been achieved resulting in a payback period of just 1.3yrs.

692,000

kWhr/yr
SAVING

1.3yr

PAYBACK