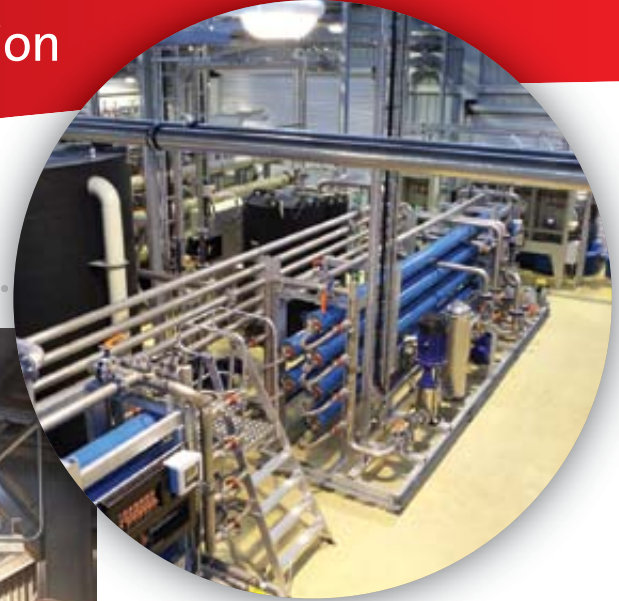


## CASE STUDY

# Industrial Outsourcing

## Implementing a sustainable solution in a water stressed area



All water used in the Tilmanstone Salads factory processes must meet or exceed the current Drinking Water Inspectorate Regulations. So the process flow starts with the site's existing effluent plant, which receives the outfall of wastewater from the factory's salad and vegetable washing processes, collecting it in a sump (wet well).



When one of East Kent's largest food producers needed to reduce its industrial water demand, Veolia Water Industrial Outsourcing (Veolia) provided a turnkey solution.

Bakkavor Group produces prepared vegetables and a variety of salads in bags, trays and bowls for one of the UK's leading retailers at its 22 acre site Tilmanstone Salads factory at Eythorne, Kent.

Located in a water-stressed area, the site was consuming a significant amount of mains water a day. Water stewardship became the Group's number-one priority, so it set about identifying a credible and suitable project partner equipped with the

knowledge, ability and resource to design, build, own, operate and maintain (DBOOM) a recycled water treatment plant.

In July 2011 the Group selected VWIO as its project partner for a 10-year contract. By November 2012, the VWIO team had completed commissioning of the new plant, and was operating it on a daily basis.

### What we do

Veolia Water Industrial Outsourcing partners with companies in the UK and Ireland, using cutting-edge technologies to operate and maintain existing water and wastewater facilities; deliver full turnkey DBOOM solutions; and provide multi-utility services including total water, waste and energy management, specialising in water conservation through recycling, reuse and by-product recovery.



Solutions & Technologies

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➔ The wastewater is then transferred from the wet well to buffer tanks via a 2mm wedge wire screen (to remove coarse contaminants). Greg Turner, VWIO Technical Director, said: "The next step is to transfer it into a dissolved air flotation (DAF) tank that removes any fats, oils or grease from the process water by adhering tiny bubbles of air to the contaminants. This causes the suspended matter to float to the surface, where it can be removed by a skimming device.

"The process water is then treated in a membrane biological reactor (MBR), which contains an active biomass that removes any remaining soluble organics. It then passes through three further systems – ultra-filtration, nano-filtration and UV disinfection, which are the physical barriers that ensure all recycled water meet DWI requirements – before being blended with mains water (three parts recycled water to one part mains water)."

### Project Details

The VWIO team designed, built, own, operate and maintain a recycled water treatment plant on the Tilmanstone Salads site in east Kent. The project requirements included a significant reduction in both water consumption and the costs associated with trade effluent disposal.

Nothing is wasted. The sludge resulting from the treatment process is separated using a centrifuge: the water is reintroduced to the recycling process and the dewatered sludge is recycled to land as a soil improver by our sister company Veolia Water Organics Recycling. In addition, the reject stream from the nano-filtration unit drains into the company's surface water soakaway, which feeds a non-potable aquifer and discharges through a local Site of Special Scientific Interest (SSSI) reserve.

The entire process takes around seven to eight hours to complete and the VWIO team monitors it continuously, using online instrumentation at all stages. Water quality is also tested regularly by VWIO experts and by independent laboratories.

The economic benefits of the VWIO team's solution are impressive: the water footprint for salad washing is now 75 per cent lower, with a consequent reduction in costs related to mains water purchase and trade effluent disposal. This means that more potable water is available in the locality – enough to supply 5,000 domestic residents.

And it's good news on the sustainability front too, as Tilmanstone Salads Commercial Manager Richard Miller confirmed: "This investment represents long-term water security for Tilmanstone in a changing climate and addresses the very real issue of conserving natural resources."

### Processes

Our day-to-day process map now includes the following activities.

#### Decontaminating the wastewater:

- Barriers including a 2mm wedge wire screen to remove light effluent
- DAF tank removes fats, oils and grease
- MBR technology removes remaining soluble organics
- Ultra-filtration, nano-filtration and UV disinfection
- Blending recycled water with mains water
- Recycling the dewatered sludge to land as a soil improver
- Using reject water from the nano-filtration system to feed a local non-potable aquifer.
- Monitoring operations continuously using online instrumentation
- Testing water quality on a regular basis

### Veolia Water Solutions & Technologies

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