deHOXAR

SPIRAL SEPARATOR

Burham Water Treatment Works



SPIRAL DESIGN INFORMATION	
Max Flow	~7Ml/day
Site Owner	Southern Water
Spiral Spec	2nr 3m diameter
Duty	Washwater recovery

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OVERVIEW

Southern Water wished to recover the water wasted from back washing sand filters, as well as the supernatant from the clarifier sludge at Burham WTW. In order to do this the solids required removal prior to the liquid being recycled to the head of the works for treatment.

Following successful solids separation treatment trials with Spirals, to achieve this, a production plant was designed comprising two 3m diameter Spirals, with Kalsep filters downstream, to guarantee adequate removal of particles down to one micron, to standards required by the Drinking Water Inspectorate (DWI).

The 3m diameter Spiral used during the trials was moved to the location of the proposed production treatment plant site. Another 3m Spiral was then constructed next to it.

The treated water was returned to the works inlet, whilst the Kalsep filter backwash was wasted to the lagoon. Sludge from the Spirals was taken by road tanker to a local sewage works; the waterworks sludge was mixed with sewage sludge before de-watering.

BENEFITS

The Spiral solution offered the following benefits over alternative traditional primary settlement devices:

- Small footprint (compared with lamellas)
- Simple pipe arrangement (compared with lamellas)
- Very high standard of settled water

PERFORMANCE AND MAINTENANCE

After a period of operation, it was decided to remove the Kalsep filters and to use the space freed up to install a centrifuge (with the filtrate being discharged to a lagoon).

The settled water from the Spirals was meeting the DWI requirement without the need for further polishing. This significantly reduced the water wasted (in backwashing the Kalsep filters) and produced a sludge cake resulting in less truck movements for sludge removal.

The sludge then went directly for disposal, rather than going to the sewage works which greatly lowered sludge handling costs.



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