Warden Biomedia

Home of Random Biological Filter Media

Case Study

WARDEN BIOMEDIA CHOSEN FOR NEW SEVERN TRENT WASTEWATER PLANT

Severn Trent Water Limited (STWL) is a regulated business with responsibilities for the provision of water and sewage services to over 8 million people in an area stretching from the Severn Estuary to the mouth of the Humber.

Severn Trent Water Limited constructed two aerobic treatment units (ATUs) at an existing Sewage Treatment Works. The ATUs were required as part of wider asset maintenance works being undertaken to expand wastewater treatment capacity in the Melbourne area of Derbyshire.

The wider works comprised the installation of 4 new Submerged Aerated Filters (SAFs) to replace the existing High Rate Filter which was underperforming. The performance problems with the HRF were causing the works to operate at the top end of the consents limit set by the Environment Agency, with a high possibility of failures.

Random biological filter media from Warden Biomedia were chosen to provide ultra-efficient and cost-effective aerobic treatment in the new ATUs for Severn Trent Water. The aerated treatment units were manufactured and supplied by Haith Industrial.

The excellent ventilation and high voidage performance of the Warden Biofil and Bioball filter media make them extremely effective in wastewater treatment applications. They are injection-moulded in polypropylene with specific design features to increase the efficiency of the biological process. Triangular fins increase the total surface area and encourage the formation of the biological films of bacteria, protozoa and fungi which will eat and biologically break down the organic content. The design also ensures high voidage to prevent blocking that might otherwise slow down the process. The serrated edges of the fins enable them to interlock in the filter bed giving excellent mechanical strength.

With these purpose-designed features the biological filter media in the Warden Biomedia range are an excellent alternative to traditional mineral-based media and are perfect for overcoming problems of overloading in established trickling filter beds.

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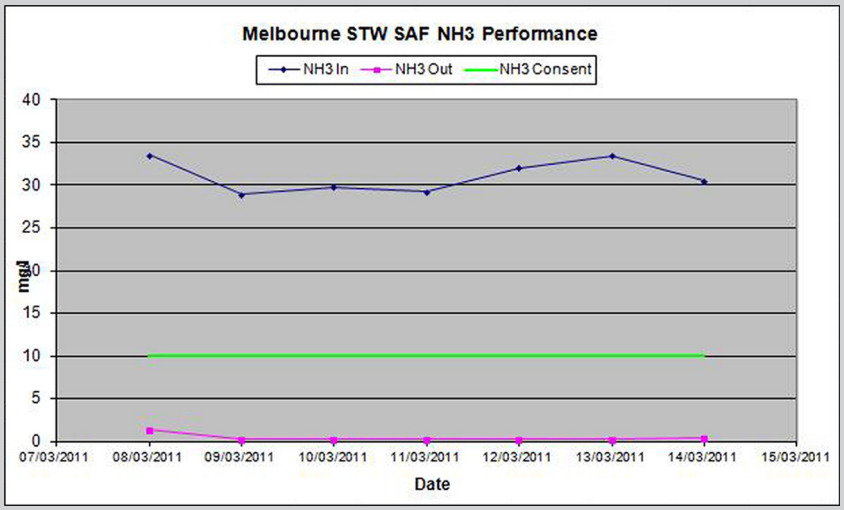
David Evans, project manager at Haith Industrial said, **"The Warden Biomedia were a natural choice for this project as they have high efficiency rates and are also very cost-effective and long-lasting."**

Results Achieved

Works / Sample Point	Set	Day	Date	Tag No.	Alkalinity mg/l (016)	Ammonia mgN/l (017)	% Ammonia Removal	BOD(ATU)5 mg/l (010)	% BOD Removal	COD (Total) mg/l (070)	pH (002)	S.S. mg/l (007)
Melbourne Settled Composite	1		08/03/2011	806979	400	33.5		149		269	7.9	88
Melbourne SAF Effluent Composite				807000	132	1.32	96%	18	88%	93	7.8	71
Melbourne Settled Composite	2		09/03/2011	806980	353	28.9		121		203	8.0	60
Melbourne SAF Effluent Composite				807001	125	0.19	99%	10	92%	60	7.9	49
Melbourne Settled Composite	3		10/03/2011	806981	364	29.80		82		214	7.8	72
Melbourne SAF Effluent Composite				807002	124	0.19	99%	8	90%	37	7.7	56
Melbourne Settled Composite	4		11/03/2011	806982	379	29.20		108		256	7.7	66
Melbourne SAF Effluent Composite				807003	120	0.19	99%	10	91%	89	7.6	56
Melbourne Settled Composite	5		12/03/2011	806983	344	32.00		122		266	7.7	78
Melbourne SAF Effluent Composite				807004	124	0.19	99%	12	90%	82	7.6	52
Melbourne Settled Composite	6		13/03/2011	806984	361	33.40		130		309	7.7	78
Melbourne SAF Effluent Composite				807005	115	0.19	99%	12	91%	124	7.6	56
Melbourne Settled Composite	7		14/03/2011	806985	388	30.5		128		279	7.7	72
Melbourne SAF Effluent Composite				807006	112	0.35	99%	7	95%	91	7.6	36



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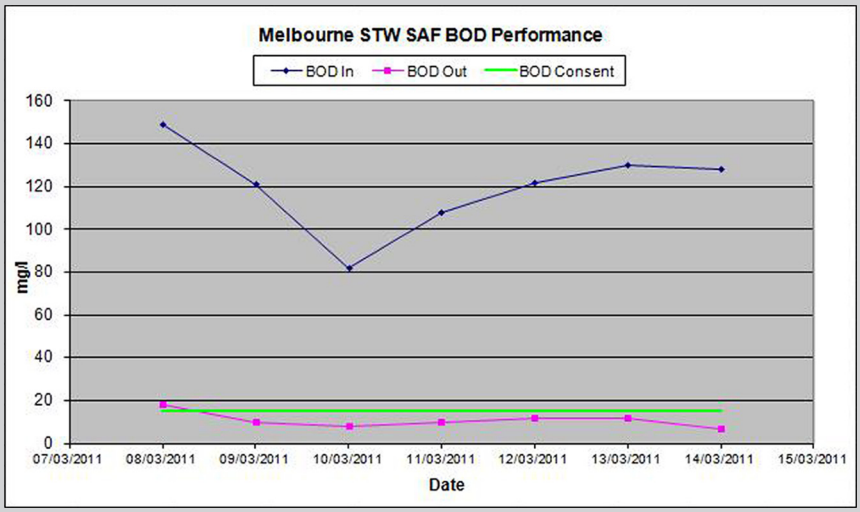

Date	NH3 In	NH3 Out	NH3 Cons	BOD In	BOD Out	BOD Consent
08/03/2011	33.5	1.32	10.00	149	18	15.00
09/03/2011	28.9	0.19	10.00	121	10	15.00
10/03/2011	29.80	0.19	10.00	82	8	15.00
11/03/2011	29.20	0.19	10.00	108	10	15.00
12/03/2011	32.00	0.19	10.00	122	12	15.00
13/03/2011	33.40	0.19	10.00	130	12	15.00
14/03/2011	30.5	0.35	10.00	128	7	15.00

Site Consents: 15 : 25 :10 (BOD:SS:NH3)

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