

LAKE ALFRED WWTP, LAKE ALFRED, FL

CASE STUDY

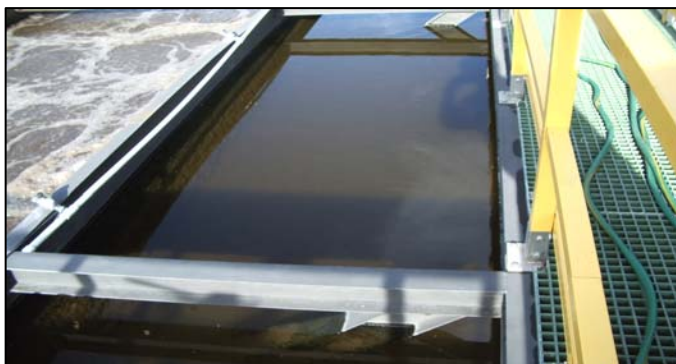
When the City of Lake Alfred decided to upgrade their existing 1 MGD trickling filters wastewater treatment plant, they looked at a number of technologies and after an evaluation decided on the USBF process.



As part of the upgrade, the plant was provided with a new Fontana Integrated Headworks, which screens the influent, washes and dewater the screenings, removes sand and grit, and deposits washed screenings and grit into separate bins. From the headworks, the screened influent flows to equalization tank (which is a reconditioned old trickling filters tank – trickling filters removed).



From the equalization tank, the influent is pumped into bioreactor modules. The influent first enters the anoxic tanks (above right in the forefront) and with the slide gate open, it passes into the aeration tanks. The still water in the pictures above and below is the treated effluent surface of the USBF sludge blanket filter, within which fluidized bed filtration (upflow sludge blanket filtration) takes place. The water is crystal clear as can be seen in the pictures below.



The above right picture shows raised sludge filter blanket approx 8-10 inches below clear water surface (the sludge blanket level was intentionally raised by prolonged influent pumping).

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Filtered clean effluent at the top of the sludge blanket filter overflows into a v-notch overflow trough located under the walkway. There are no moving mechanical parts within the sludge blanket filter/clarifier or the overflow troughs.

From the overflow trough the treated effluent flows by gravity into the Fontana drum microscreen filters. Picture on the right shows filtered effluent in the backwash well of the microfilter (the microfilter uses filtered effluent behind the filter for its automatic backwash).



From the effluent storage tank below the microfilters, the treated, filtered effluent is pumped to the existing chlorination.

	Influent		Effluent		
	BOD mg/L	TSS mg/L	BOD mg/L	TSS mg/L	NITRATE mg/L
Date					
4-Jun-08	181	192	5.03	3.6	3.60
11-Jun-08			4.76	2.5	3.73
18-Jun-08	219	366	5.09	2.0	3.75
25-Jun-08			5.45	5.0	3.79
Average	200	279	5.08	3.3	3.72

The plant retrofit and upgrade was completed and the plant started up in May 2007. As illustrated by the analysis of samples taken during the month of July 2008, the plant is exceeding its design parameters of <10 mg/l for BOD, TSS and Nitrate.

