

Why a rock filter should be considered an integral part of a WSP system when the effluent is to be discharged into a surface water and the required SS concentration is lower than that specified in the European Urban Waste Water Treatment Directive<sup>1</sup>

*Especially in industrialized countries.*

### WSP effluents: algal SS

We shouldn't think of algal SS as a problem!

#### **Conventional wastewater treatment:**

Biological treatment + secondary sedimentation

#### **Waste stabilization ponds:**

Facultative pond + rock filter

An activated-sludge aeration tank is always followed by a secondary sedimentation tank.

So why not follow a facultative pond with a rock filter, either aerated or not?<sup>2</sup>

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Biomass  
removal

They both serve the same function: the removal, prior to discharge, of the excess biomass produced in the biological treatment stage – bacteria in the case of activated sludge, and algae in the case of WSP.

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“WSP system”

So the combination of a facultative pond and a rock filter (aerated or not) is a WSP system.

<sup>1</sup> Council of the European Communities (1991). Council Directive 91/271/EEC of 21 May 1991 concerning urban waste water treatment. *Official Journal of the European Communities* **L135**, 40–52 (30 May). The Directive specifies  $\leq 150$  mg/l for WSP effluents.

<sup>2</sup> D. D. Mara and M. J. Johnson (2006). Aerated rock filters for enhanced ammonia and fecal coliform removal from facultative pond effluents. *Journal of Environmental Engineering, American Society of Civil Engineers* **132** (4), 574–577.