

## Meeting regulatory requirements using poplar and willow for wastewater treatment

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The use of poplar and willow in the management of wastewater has many technical and economic advantages and frequently is the most appropriate, sustainable technology for a given set of circumstances. However, regulatory agencies are generally unfamiliar with this approach to wastewater treatment and find it difficult to apply regulations developed for a more traditionally engineered approach. Equally, potential users of the technology are attracted to its green image and comparatively low capital cost, but despite these benefits, they require guaranteed, rather than estimated discharge quality standards. These can be difficult to quantify without extensive laboratory, glasshouse or field based testing, for which they are unwilling to pay.

Key criteria by which a proposed treatment facility or management strategy would be judged by a regulator are not necessarily relevant or applicable to a system employing willow or poplar. Similarly, key elements of tree based systems can fall outside regulatory terminology, and the need to categorise a facility within fixed boundaries such that unnecessary pre-treatment is demanded or inappropriate and costly licensing required. Even when a system is approved by a regulator, an excessively high level of monitoring may be called for because of a lack of confidence in the technology, reducing some of the cost benefits of a plant based treatment system and decreasing user confidence in the technical soundness of the approach.

The challenge is to provide both regulator and wastewater producer with information by which they can make a direct comparison between the merits of willow and poplar based wastewater treatment systems and conventionally engineered facilities. This paper will use site specific examples from landfill sites, a milk processing facility, a solvent recycling plant and a beef abattoir, to examine where regulation can potentially stop the development of facilities employing poplar and willow for wastewater treatment. It will then consider how these regulatory barriers may be overcome and look at where research needs to focus to facilitate greater regulatory acceptability of tree based wastewater management systems.

**Key words:** willow, poplar, landfill leachate, regulation, wastewater.

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