The Development of Mitigation Strategies for the Management of Trihalomethanes (THMs)

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THMs are a primary by-product of chlorination, formed by reactions between halogens and organic matter in water, particularly the humic and fulvic acids resulting from the decomposition of natural and anthropogenic organic material. Some THMs are known to be carcinogenic and consequently they fall within the Directive Requirements of the Water Quality Regulations, 2000, with a maximum permitted concentration of 100 µg/l from January 2004, measured at customers' taps. The degree of THM formation is known to be a function of raw water quality, the treatment processes to which the water is subjected and processes operating within the distribution systems.

Some water companies experience a THM challenge in certain distribution systems fed from a combination of surface and groundwater sources and are keen to adopt a more proactive and more cost-effective approach to THM challenges in future years. The University of Birmingham has been commissioned to undertake a study in this area.

The specific aims of the project are to undertake desktop, field and laboratory studies to:

- Develop a conceptual understanding of the influences of raw water sources, water treatment works and distribution systems on the key parameters associated with the formation of THMs in water supply systems.
- Model the changes in the key parameters to develop a more detailed understanding of their inter-relationships.
- Develop mitigation strategies for the management of THMs within selected water supply systems from source to customer tap, at a minimum cost compatible with acceptable microbiological and manganese compliance risks.