EXECUTIVE SUMMARY

In December 1999 the DETR appointed the Water Quality Centre (WQC) as contractor to carry out a study to assess consumer exposure to endocrine disrupters and other toxic substances from drinking water tank materials.

The objectives of the contract were to:

1. Review the initial WRc report (“Exposure to Endocrine Disrupters via Materials in Contact with Drinking Water” report number DETR/DWI 4711/2) and recommend product types which warrant further study to characterise consumer exposure arising from in-service use.

2. To propose suites of analysis for each product type which provide a representative selection of parameters comprising endocrine and other toxic substances.

3. To propose a programme of monitoring to characterise consumer exposure in premises served by new or refurbished drinking water storage tanks.

The duration of the study was initially twelve months but was extended by a further three months to accommodate difficulties with obtaining suitable sites for monitoring.

The sampling and analysis programme focused on materials leaching from new and refurbished drinking water storage tanks. The availability of suitable sites proved to be severely limited, however four sites were investigated where the following type of work was being undertaken:

- Replacement tank- GRP replacement (two sites)
- Relined tank- butyl rubber liner relining (two sites)

From the review of the existing report, a decision was made that samples from the four sites would be analysed for the following selection of known potential endocrine disrupting groups of chemicals:

- Alkyl phenols- nonyl phenyl; octyl phenol
- Bisphenols- bisphenol-A; bisphenol-F and their corresponding diglycidyl ethers.
- Phthalates - bis 1-0ctylphthalate; bis nonylphthalate; bis 2-ethylhexylphthalate; bis ethylphthalate; bis butylphthalate; bis iso-butylphthalate; benzylbutylphthalate; bis hexylphthalate; bis methylphthalate.
- Styrene.

Additional information about site and environmental conditions were recorded. TOC and general GC-MS scan analysis were carried out for each site.

For each site samples were taken pre- and post-installation, comprising feed-to-tank, dip sample from the tank and a nearby point of distribution from the tank.

Acute exposure risks only were monitored.

No significant increase between pre- and post installation analysis results for the target analytes or TOC were recorded.

The GC-MS scan analysis detected a small number of non-targeted analytes (concentration ranging from <1.0 - 12.0 µg/l) in some samples. Details of the GC-MS scan analysis are included in the final report.

The results of the analysis of the targeted analytes indicated that there is negligible risk to the consumer from these potential endocrine disrupting chemicals following correctly installed or refurbished water storage tanks.

Due to the limited number of sites involved in this study it is recommended that further studies be undertaken to ensure a representative data set is obtained. As knowledge of the subject of endocrine disrupters is growing rapidly a regular review of the subject should be undertaken to incorporate the most recent understandings of the topic.