

APPENDIX 3

DEMAND MANAGEMENT

The following analysis supports some of Steventon Parish Council's main concerns with Thames Water's rev.dWRMP which are outlined in the representation. It addresses some of the major questions that have been raised on this subject.

Leakage and per capita consumption, because of their importance, have been covered in sections on their own and this section addresses other, additional aspects of demand management.

There appears to be some confusion about the length of mains to be replaced in AMP 4 (2041 km Vol 1 page 8 and 2168 km Vol 2 page 20). However it seems that in AMP 5 + AMP 6 Thames Water proposes to replace a total of 3000 km plus 1572 km under the capital maintenance scheme (Vol 3 page 443) making a total of about 6700 km. Although this total seems less than the length of mains declared to be more than 100 years old there appears to be no plans for further mains replacement after AMP 6, although 3000 km were included in the dWRMP for AMPs 7-9. This does not seem prudent given the rate of corrosion and the rate at which Thames Water must repair bursts and leaks (70000-80000 per year Vol 3 App C page 74).

Thames Water dWRMP page 153 Vol. 2 Table 37. Enhanced water efficiency programme. Self audit packs - Thames Water planned to issue 328,000 of these in AMP 5 at a cost of £11.776M and that savings of 8.1 MI/d would result. The capital cost of this water saving is £1.40M/MI/d and there are zero ongoing social and environmental costs associated with the programme. However in Thames Water's rev dWRMP Vol 3 Table D10 page 143 there is a new proposal to issue 226,500 self audit packs at a cost of £8.125M saving 2.97 MI/d, giving a capital cost of £2.91M/MI/d. We could not see any evidence to support this decrease in the amount of water saved. Assuming that the proposed reservoir will have a capital (NPV) cost of £0.813B and a yield of 198 MI/d (Vol 2 page 219) that gives a capital cost of about £4.1M/MI/d and there would be ongoing environmental, social and financial costs. These costs suggest that self audit packs would still be a cheaper way of increasing headroom than building a reservoir.

Thames Water's rev dWRMP Vol 2 pages 16 & 17 Thames Water appears to be taking the view that the 2005/6 drought savings were much less than expected (when compared to the 1975/6 drought) therefore the deployable output for London and SWOX should be reduced. There does not appear to be sufficient evidence given to support these views. In particular it would be necessary to know if the reduced savings were as a consequence of the wider knowledge of Thames Water's high leakage rate or because a non-essential use ban was not in force, in order to meaningfully compare the 1975/6 and 2005/6 savings and decide which should be used in future predictions. Thames Water needs to justify their opinion that a non-essential use ban would only result in a 2% water saving when we believe that other water companies consider the saving to be more than 10%.

They also appear to think that the Environment Agency's suggestion that the level 4 curve can be moved down (increasing the deployable output by 20 MI/d) is unacceptable.

APPENDIX 4

ALTERNATIVE SOURCES OF SUPPLY

The following analysis supports some of Steventon Parish Council's main concerns with Thames Water's rev.dWRMP which are outlined in the representation. It addresses some of the major questions that have been raised on this subject.

Thames Water's rev dWRMP Vol 3 Tables F16, F41 & F42 pages 200, 225 & 226
The transfer of water from Kielder appears to have been costed on the basis of a transfer of 300 and 315 MI/d. Our expectation is that apart from being about 50% greater than the output of the proposed reservoir (which itself is predicted to have only about 30% utilisation by 2034) the extra capacity would significantly increase the costs of the schemes as the existing infrastructure from Kielder to Yorkshire would probably not be able to accommodate such an increased flow and would therefore have to be upgraded to cope. There appears to be no evidence that Thames Water has considered sharing costs and yields with other water-stressed water companies along the route considered. Kielder does however have an additional advantage; it is very unlikely to be affected by any drought in the Thames Water region, unlike the proposed reservoir.

Thames Water's rev dWRMP Vol 3 Tables F9 & F10 pages 193 & 194
Both these options have been considered with an output of 307 MI/d which apart from being about 50% higher than the proposed reservoir it is vastly in excess of the amount of water that Thames Water estimates that it will need by 2034. A Longdon Marsh Reservoir was investigated by the Water Resources Board many years ago and considered by Thames Water as a result of comments from GARD. Our understanding was that it would be a small scale scheme which abstracted its water when the River Severn was in flood and would therefore be approximately flood neutral and that a reservoir there would be flexible in size in that it could easily be expanded in the future if that should be needed. This would mean that excessive capital would not have to be committed many years before the increased capacity is thought to be needed. Thames Water seems to be considering a totally different higher cost scheme that would abstract much more water.

Thames Water does not appear to have fully explored the option of transfers from the Severn in winters during times of drought in order to fill Thames Water reservoirs that have been drawn down.

REUSE

We understand that a number of water companies (including Thames Water at Hoddesdon) have or are already constructing effluent re-use plants, using existing biological processes, as alternatives to building reservoirs.

Thames Water's rev dWRMP Vol 3 Tables F32, F34, F39, F40 and F58 pages 216, 218, 223, 224 and 242. All of these reuse schemes considered propose using a treatment method which included microfiltration, ultrafiltration and reverse osmosis. This is a very expensive treatment method with high carbon costs compared to the standard biological process plus UV sterilisation used or planned by other water companies. We note that Thames Water

has still not produced any chemical analysis results to support this alleged need. The Parish Council can therefore not find any justification for the use of this much more expensive process. If there were to be a proven chemical problem with the quality of the effluents then we would expect Thames Water to try a low cost solution such as aeration and reed-bed plus willow plantation filtration which is a proven technique (in use at the Centre for Alternative Technology and elsewhere) or the process used at the Langford works for treating sewage effluent rather than the high cost scheme they have considered. Thames Water has not provided evidence to support their choice of process and we would urge the inquiry to ensure that all the alternatives are fully considered.

We are not convinced that the proposed increased exploitation of a vital and limited resource in the Thames Water catchment area is a sensible course of action, particularly in the face of climate change. We would regard the reduction of demand and effluent reuse as being much more suitable and reliable in uncertain times. If that should not be accepted then our second choice would be the importation of water from a different catchment area such as Kielder. It is sobering to note that Kielder was constructed about 40 years ago to meet expected future increases in demand which never materialised, so that only about 25% of the deployable output is currently utilised.

We recommend that Thames Water include effluent re-use plants in London as they would be weather independent and therefore a guaranteed source of water in times of drought. Construction of these could entirely eliminate the climate change uncertainty, reduce the target headroom and prevent a possible future need for a very damaging storage reservoir, even if the future demand should be as high as Thames Water predicts.

We are not convinced that Thames Water has carefully analysed the exact schemes proposed previously by GARD, this is a matter of concern.