

11 Our Plan - An Overview

Water Quality

Excellent water quality is of paramount importance to customers and is our primary objective. We are obliged to supply water that meets all aspects of the drinking water standards as well as ensuring our discharges meet licence conditions. We therefore have no choice about investing to meet water quality standards. We do however work hard to find the most cost effective way of doing so and if possible will adopt, with the consent of the Drinking Water Inspectorate, a low cost solution if we consider the problem is only temporary.

Investment in water quality is carefully analysed by the Drinking Water Inspectorate and OFWAT to ensure it is needed and the schemes proposed are the best value for money.

In the period to 2015 we have to complete the following DWI approved schemes :

| Scheme | Cost | By | Purpose |
|--|-------------|----------|--|
| 2 catchment management schemes | <£1m | on-going | To reduce pesticides getting into raw water sources |
| Reduce risk from nitrates at Egford source | £4m | 2014 | To offset rising nitrates in ground water source |
| Raw water disinfection | <£1m | 2012 | To remove zebra mussel blockages |
| Install new treatment process at Sherborne | £4m | 2013 | To offset declining raw water quality |
| Install U/V disinfection at 4 major works | £16m | 2014 | To ensure final treated water meets standards |
| Renovate 59km of trunk mains | £24m | 2015 | To reduce discoloured water events (and to reduce leakage) |
| Security schemes | £5m | on-going | To improve site security |
| Total | £54m | | |

Scheme descriptions -

We plan to investigate cost effective methods of avoiding failures of the metaldehyde quality standard. We will work with farmers and others in catchments during the coming period to minimise the amount of pesticide and nitrate that gets into water courses.

Metaldehyde

Bristol Water through its normal investigations was the first to detect metaldehyde, a pesticide, in many of its raw water sources. It has subsequently been found in many other parts of the country. Conventional treatment processes lack effectiveness in removing metaldehyde. Levels found breach the water quality standard but do not represent a threat to health.

Having brought the issue to national prominence, we will be carrying out catchment management studies and working with manufacturers and farmers to improve application methods to minimise the amount of metaldehyde that enters water courses so that concentrations are reduced to levels treatable with existing plant – a significantly cheaper solution than installing expensive new treatment processes. However, given the exceptional costs this could involve if our plan is not successful we would need the protection of an interim price adjustment should work have to start before the next price review.

Because of increasing levels of nitrates in our Egford source, there would traditionally be a need for additional treatment processes at Frome Town works. A lower cost solution is to build a larger service reservoir to support blending with low nitrate water from our Oldford works. However an opportunity arises to reduce costs further by having a smaller service reservoir and utilising the Oldford Resilience scheme described in the next section. This allows treated water from additional sources to support the necessary blending should Oldford treatment works be unavailable. Critically the resilience scheme must be in place for this strategy. We have credited the cost of the resilience scheme with the incremental £1.2m saving from these synergies.

We will change the treatment of the raw water extracted from the Sharpness Canal to avoid water quality failures at Littleton arising from chlorination by-products.

We will build new treatment processes at Sherborne treatment works to enable compliance with the 2013 lead standard.

We will install ultra-violet disinfection at four works and membranes at another works to reduce the risk to the public from *Cryptosporidium*.

The corrosivity of raw water from our reservoirs has been increasing. This is leading to higher levels of iron in treated water. We have identified 59km of trunk mains of greater than 300mm (12") diameter whose condition coupled with the increased corrosivity is leading to failures of the iron quality standard and to discoloured water complaints from customers. We plan to renovate these mains to reduce the number of iron failures and reduce the number of discoloured water complaints. This re-lining work is in addition to the mains refurbishment discussed in section 10.

Minor security improvements are required at some facilities to protect water quality to reflect developing best practice standards.

Our Water Resources Plan identifies that the yield increases at Sherborne and Frome Town treatment works would be beneficial. The new works have been sized accordingly and 25% of the cost of Sherborne and 10% of the cost of Frome improvements have been allocated to Supply/Demand.

We systematically flush mains to reduce the number of discoloured water complaints and iron compliance failures. The evidence shows this to be effective and thus we plan to continue. The on-going costs are included in infrastructure maintenance.

We are pioneering a method of flushing large diameter mains using slushed ice. This innovative cleaning method is successful in removing substantial amounts of sediment in mains and allowing them to be returned to service quickly. We plan to continue developing this method to flush trunk mains and in particular to overcome issues during trials on cast iron mains where coal tar lining breakaway has been observed.

Summary of the effects

These schemes result in more complex and higher cost operations. Unfortunately most increase our carbon footprint because of the additional power requirements in order to run them. By 2015, when these schemes will have been completed, we project they will increase annual operating costs by £1.1m.

In summary, the effect of water quality improvements in the current and the next period is to increase prices as follows. Cumulatively prices will be 5% higher by 2015.

| Water quality | 2010/11 | 2011/12 | 2012/13 | 2013/14 | 2014/15 | 5 years |
|------------------------------------|---------|---------|---------|---------|---------|---------|
| Capex | £9m | £13m | £15m | £12m | £5m | £54m |
| Opex change | 0.1m | £0.2m | £0.3m | £0.2m | £0.3m | 1.1m |
| K factor needed | - | 1% | 1% | 1% | 1% | 5% |
| Increase in average household bill | £1 | £2 | £2 | £2 | £1 | £8 |

All figures in 2007/8 values, rounded to nearest unit