



# **Bristol Water Plc**

## **Drought Contingency Plan**

### **Consultation**

## **Statement of Response**

August 2006

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## **Section 1. Introduction**

### **1.1 Summary**

All water companies in England and Wales are required by statute to have contingency plans for coping with periods of drought. The process by which this plan is developed must now comply with the new regulations of the 2003 Water Act.

In 2005, the Company reviewed the effects that a range of drought conditions would have on the availability of water and continuity of supply to customers. During this review, we consulted with a wide group of stakeholders, including the Environment Agency, the Consumer Council for Water together with local environmental and business interests.

Informed by these discussions, we revised and updated the existing plan to ensure that a mains delivered supply of water would remain available during the type of severe drought that could be expected only once in 100 years.

The Company's revised draft Drought Contingency Plan was submitted to DEFRA for formal consultation in March 2006. In addition, all of the stakeholders and wider public were notified by letter of the revised plan and given details of the consultation period and how to make representations regarding the plan to DEFRA. The draft plan was offered as a paper document, and made available on the Company web site.

Over fifty organisations and individuals were formally invited respond during the consultation phase. DEFRA have forwarded representations to us regarding our plan from five organisations. These organisation were:

- Environment Agency
- English Nature
- Consumer Council for Water
- Ofwat
- National Farmers Union

We are grateful to those organisations for taking the time to consider the proposals made in our draft Drought Contingency Plan and welcome their representations.

We have studied the representations and recommendations we have received. We have also considered how these representations can be taken account of either within the context of the statement of response, as changes within the final version of the Drought Contingency Plan, or as part of a process to improve future versions of the plan.

These responses will be sent to DEFRA for consideration by the Secretary of State during the period up to the end of 2006. The Secretary of State will advise us if he considers that aspects of our plan should be investigated further at a Public Enquiry or other form of hearing before the end of October.

The key milestones for the remainder of the planning period are as set out below:

- DEFRA will direct water company regarding content of final plan -February 2007
- EA to check that final plans comply with SoS directions - March 2007
- Water Company to publish and distribute final plans - By April 2007

## **1.2 Analysis of representations**

Although representations were received from only five organisations, the quality and detail of the responses was substantial. We were pleased to note the plan attracted a generally positive response from most organisations. However, it is clear that some further work will be needed in order to ensure the plan meets all stakeholder expectations. In general the responses we received were directed at the following aspects of the draft plan:

- Issues concerning appearance and presentation
- Comments requesting additional background information or clarification
- Issues regarding stakeholder and public communication during dry periods
- Recommendations in regard of improved environmental assessment
- Request to consider improved monitoring requirements

Responses received from Ofwat, Consumer Council for Water (CCW), and the National Farmers Union (NFU), have focussed primarily on the first three aspects indicated above. We intend to implement all of the requests and improvements indicated by these three consultees. The manner in which we will do this is set out in the sections covering detailed responses.

The Environment Agency (EA) and English Nature (EN) have raised issues largely in relation to environmental considerations. We worked with the EA before developing our plan to acquire whatever data was available. Unfortunately this data was not sufficient to be able to develop a robust environmental assessment. Possibly as a consequence of the lack of data, the EA had difficulty in providing specific guidance on monitoring requirements. However, we still expect to be able to meet the reasonable expectations of the EA and EN within the final Drought Contingency Plan. Our approach is set out in the responses we have made to individual representations.

## **1.3 Responding to representations.**

Our response to each organisations representation has been set out in the individual sections below. We have aimed to respond to all of the points raised by each organisation. However, for the sake of clarity we may have summarised, or paraphrased the words of the responses in some cases. In addition we may have treated certain issues as related, and grouped them accordingly. This will result in our responses on certain issues not being in exactly the order of the original representation.

In some instances, separate organisations have made representations in regard of similar or even identical issues. Where this has occurred, we have indicated the fact but duplicated any text indicating how we intend to address the points made.

## **Section 2. Ofwat**

### **2.1 Breadth of Ofwat response**

We thank Ofwat for their positive and helpful comments on our draft Drought Contingency Plan. Some of the comments relate to issues of style and presentation within the report document. Ofwat has also requested information regarding customer entitlement to compensation during periods of dry weather.

### **2.2 Stakeholder Communication & liaison**

#### **2.2.1 Report Style**

Ofwat have indicated some changes and additions to the text of the report that would correct a minor error and aid understanding for the general reader. We accept all of these points, and will incorporate them in the final version of the Plan.

Ofwat has also pointed out that some of the graphical information in the plan could be better displayed, using blocks of colour. We agree in principle with the Ofwat comment. However, there are limitations within the software used to produce the plan that may make this request difficult to achieve in practice. We will endeavour to implement these changes.

### **2.3 Demand management and drought actions**

#### **2.3.1 Compensation payments**

Ofwat have requested details regarding compensation payments that customers may be entitled to as a result of implementing the actions contained within our draft plan.

We do not consider general compensation payments to customers in respect of restrictions imposed during drought to be appropriate. There appears to be no legal requirement, or liability under the Water Act to compensate customers for any loss of amenity, as the water company is acting under statutory obligation expressly to reduce the demand for water.

A drought order will increase the powers of water companies to extend restrictions to water use across a greater range of customers. Again, these are statutory powers that are intended to allow water companies to act in the interest of maintaining supply for the 'greater good'. There are no requirements to pay compensation to those impacted by such restrictions. The general powers of a drought order confer rights on the water company to take responsible action without the potential to generate compensation claims.

The Company has a 'Bristol Bond' scheme to make *ex gratia* payments in the case of failure to maintain supply or minimum pressures, under normal conditions. However, there is a general exclusion for periods of drought, or when carrying out actions as a consequence of activities to mitigate the effects of drought. This approach is considered to be appropriate because:

- Customers are paying for a standard of service that clearly states there could be periodic restrictions to supply
- We believe that there should be no incentives that could delay the implementation of customer restrictions during periods of drought.

However, we do believe that the issue of the appropriate level of service would benefit from a wider discussion in due course.

## **Section 3. Consumer Council for Water (CCW)**

### **3.1 Breadth of CCW response**

We are pleased that CCW have been able to review the draft of our Drought Contingency Plan from the perspective of customers, and the potential effects on vulnerable groups.

As with other representations, CCW have asked for more detail regarding the mechanism of communication with stakeholders during drought. We hope that the changes we propose to our plan will meet CCW expectations. We have a minor concern in respect of comments regarding use of standpipes or rota cuts. Such severe restrictions are not part of the normal drought contingency planning, but are considered to be civil contingency issues. Our Drought Contingency Plan is focused on maintaining continuity of a mains delivered water supply. The use of rota cuts or standpipes may only be considered as in response to emergency conditions that are beyond the scope of the current planning guidelines produced by the EA.

### **3.2 Stakeholder communication and liaison**

#### **3.2.1 Communication arrangements**

CCW have asked us to consider how we propose to inform special needs groups, hospitals schools, and major businesses when actions to reduce customer demand are required. Other stakeholders have had similar questions. CCW indicated the desire to the final plan publicised and made available as widely as possible.

We acknowledge CCW's concerns and will address them by adding the actions listed below to the final Drought Contingency Plan. When the volume of water stored in the reservoirs approaches the first drought control curve, as stated in our draft plan, a media campaign will be initiated. In addition we will make the following points within the final plan:

- Initiate a press and media campaign to carry information and advice to all customers. As part of this media campaign we will alert customers to other information and weekly resource situation updates to be provided on our Internet web site.
- We will notify the statutory consultees and others listed in our plan, including CCW, in writing in regard of the developing situation, and the actions the company is planning or implementing, and where further information can be obtained.
- Any likely ban on the use of hosepipes will be signalled by a substantial media campaign that would be expected to generate further press and broadcast coverage. We will make it clear in this campaign that further reductions in demand will be required by prohibiting the non-essential use of water, if the hosepipe ban proves ineffective.
- Through our Business Care team, we will advise large industrial customers of the water resources position, and what the future prospects are likely to be. Through this route we will also be asking the large water users if there would be any scope for reducing water consumption through efficiency activity.

- We will send a letter to non-household customers that have an annual consumption of 2Ml or greater to advise them of the need to ensure that they are using water as efficiently as possible, and provide them with additional sources of water efficiency information.
- We will make arrangements to establish monthly meetings with the EA area Drought Coordinator if the resources situation is likely to require significant actions to reduce demand or increase water availability.
- It will be the discretion of the EA Drought Coordinator to invite other stakeholders to this meeting. However, we would expect the key statutory consultants such as CCW, EN and Ofwat to contribute to these meetings.
- We will publish the minutes of these meetings on our web site, or make them available as paper records to stakeholders that require them.

### **3.2.2 Effect of plan on customers**

The drought contingency plan does not include actions that will adversely affect or reduce the normal water supplies to the groups of customers identified by CCW. The focus of our drought planning activity is to preserve continuity of mains water supply for reasonable water use to all customers, while helping to maximise the efficient use of water overall. We will expect to maintain system pressures at regulatory standards in zones with pressure reduction schemes in place.

At the point that a hosepipe ban is implemented, there would have already have been significant level of publicity and customer contact that would pre-empt large numbers of individual contacts. Through the use of the public relations campaign, customer and press briefings, and information posted on the company web site, it is probable that most customers will be aware of the circumstances. We would expect our normal customer services and corporate affairs systems to be able to cope with a reasonable increase in customer contacts brought about by the dry conditions.

A drought order to restrict the non-essential use of water would only be sought under the most severe conditions of drought. Before any drought order was implemented, a hosepipe ban and media campaign would have been in place for a period of some months. The effects of drought and the likely further steps and use of a drought order to ban non-essential use would have been discussed widely in the media. The Company would have advertised or published information regarding the implications and effect of operating a ban on the non-essential use of water.

The powers under a drought order to ban non-essential use are restricted to a narrow range of activities (see definitions in response to the EA representation). However, such blanket bans could impact business concerned with washing of vehicles or buildings (the ban would not impact window washing or use of water for hygiene purposes). Through consultation, we will determine the scale of effects on sectors that may be likely to be subject to a ban on water use at an early stage. Prior to requesting drought orders, we would consider this aspect further to determine if the water saving justified adverse economic effects.

Our final plan will be freely available, and we will notify our customers of the fact. As required by the statutory process, we have already stated in our draft plan that we will advise all stakeholders where the electronic version plan may be obtained. We will provide a paper copy of the plan upon request.

### **3.3 Drought measures**

#### **3.3.1 Network management**

CCW have asked us to include further information on how leakage is managed and our performance against leakage targets in our Drought Contingency Plan. We agree that this would be helpful to customers in understanding that we are fulfilling our obligations. In our final plan we will indicate:

- That leakage volume is at the economic level as audited by Ofwat and further large reductions in leakage would result in larger customer bills.
- We have consistently met or improved upon the Ofwat leakage target.
- Part of the water lost from leakage is due to leaks on customer's pipes
- General details on leakage concepts and its control.
- That we repair 95% of leaks and bursts on company mains within two days.

We will also make reference to the Water Resources Plan where there is more detail available on leakage control methods and management, together with a full account of the Company's economic level of leakage calculation.

## **Section 4. National Farmers Union (NFU)**

### **4.1 Breadth of National Farmers Union response**

The NFU response was concerned the wider potential effects of drought on farmers and growers in the region, as well as any impact that our plan could have. Further details were sought regarding the discussions that may be expected to take place between Bristol Water and the NFU if a drought were to occur.

Although the Company does not have the capacity to significantly mitigate or limit the wider effects of an environmental drought, we would expect to ensure that mains supply of potable water will continue to be provided for as long as possible, to all customers, including farmers and growers.

### **4.2 Stakeholder communication and liaison**

#### **4.2.1 Communication arrangement**

The drought contingency plan does not include actions that will adversely affect or reduce the water supplies to the type of businesses identified by the NFU. Some of the issues of communication identified by the NFU are similar to those identified by CCW and are summarized below.

As we approach a situation where supplies need to be conserved because of a developing drought, the Company will:

- Initiate a press and media campaign to carry information and advice to all customers. As part of this media campaign we will alert customers to other information and weekly resource situation updates to be provided on our Internet web site.
- We will notify the statutory consultees and others listed in our plan, including the NFU, in writing regarding the developing situation and the actions the company is planning or implementing, together with details of where further information can be obtained.
- Following this consultation, any likely ban on the use of hosepipes will be signalled by a substantial media campaign that would be expected to generate further press and broadcast coverage. We will make it clear in this campaign those that will be affected by this action. We will also indicate that further reductions in demand may be required if the hosepipe ban proves not to be sufficiently effective. These restrictions are intended for domestic customers and would not apply to uses including the watering of livestock and other supplies required to avoid distress to animals, or horticultural activity.
- Through our Business Care team, we will advise larger customers of the water resources position, and what the future prospects are likely to be. Through this route we will also be asking the large water users if there would be any scope for reducing water consumption through efficiency activity.

- We will send a letter to non-household customers that have an annual consumption of 2Ml or greater to advise them of the need to ensure that they are using water as efficiently as possible, and provide them with additional sources of water efficiency information.
- We will make arrangements to establish monthly meetings with the EA area Drought Coordinator if the resources situation is likely to require significant actions to reduce demand or increase water availability.
- It will be the discretion of the EA Drought Coordinator to invite other stakeholders to this meeting. However, we would expect the key statutory consultants such as CCW, EN and Ofwat to contribute to these meetings.
- We will publish the minutes of these meetings on our web site, or make them available as paper records to stakeholders that require them.

## **Section 5. English Nature (EN)**

### **5.1 Breadth of EN response**

The response of EN has focussed primarily on the environmental considerations that they suggest need to be expanded within the final version of the Drought Contingency Plan. In particular, they have drawn our attention to the possible wider effects that our proposals could have and that need to be considered.

We are grateful to EN for commenting on subjects that have not been explicitly stated in our plan, as it provides the opportunity to provide additional clarification in the final plan.

### **5.2 Stakeholder communication and liaison**

#### **5.2.1 Communication arrangements**

We would have expected to consult with EN at all of the appropriate stages during a developing drought as the plan was implemented (as a statutory consultee). EN has requested that they are named explicitly within the final version of the plan. We will implement this revision in the final version of our plan.

EN has indicated they would prefer to be consulted at the earliest opportunity during the developing drought. We had anticipated that this would be the case. However, we had not explicitly stated the fact. We will be expanding the section on communication arrangements within the final plan (in the light of this and other representations we have had). In the final plan, we state more clearly the arrangements for consultation. We will add further detail to our final plan to expand the points below:

- We will notify the statutory consultees and others listed in our plan in writing in regard of the developing situation, and the actions the company is planning or implementing, and where further information can be obtained.
- We will make arrangements to establish monthly meetings with the EA area Drought Coordinator if the resources situation deteriorates.
- It will be the discretion of the EA Drought Coordinator to invite other stakeholders to this meeting. However, we would expect the key statutory consultants such as CCW, EN and Ofwat to contribute to these meetings.
- We will publish the minutes of these meetings on our web site, or make them available as paper records to stakeholders that require them.

### **5.3 Environmental monitoring**

#### **5.3.1 Consideration of issues**

EN has suggested a number of environmental issues that they consider should have been included, or expanded as part of our plan. These are summarised below:

- General effects on SSSI under the Countryside and Right of Way Act
- Wider environmental effects outside of the immediate area of the rivers affected by proposals, in particular the Severn Estuary SPA.
- Consideration of the effects of proposals on protected species and BAP habitats
- An improved level of monitoring from consultation with EN

We agree that these are important considerations, and should be included in our plan or within any accompanying environmental statement. We will engage environmental consultants to review all of these issues together with the work they are conducting to address the concerns expressed by EA. We expect that the consultants appointed will liaise with both the EA and EN in preparing the baseline analysis and monitoring plan.

Further details of the additional material to be included in the final plan may be found in the section detailing the EA representation.

### **5.3.2 Drought permits**

An issue was raised by EN regarding other possible increases to abstraction from the river Severn at Gloucester used to supply the Bristol Water abstraction at Sharpness, and increases in abstraction from sources in the North Somerset area.

No proposals to seek drought permits to change the abstraction regimes in response to drought at these sites were made in our draft plan. We will comply with existing license conditions at all source locations in the Company area, and will not be seeking to modify any other licence conditions except for the three compensation discharge points individually identified in our draft plan. We will add additional text to our final plan to reinforce this point.

## **Section 6. Environment Agency (EA)**

### **6.1 Breadth of EA response**

We thank the EA for their detailed review of our Drought Contingency Plan and their recommendations.

We have observed that the majority of the comments are focused on the requirement for improved environmental assessment and monitoring of sites where we propose to seek a drought permits to alter river flows. We are pleased that the EA recognises that lack of existing environmental data is a key issue. In our response, we have indicated how we intend to address these issues within the final version of the Drought Contingency Plan.

The EA has stated that they believe we should take actions to complete the monitoring work as soon as possible to reduce the risk that drought permit or drought order applications may be delayed or refused due to a perceived lack of supporting information. We are concerned that the EA may not be giving due consideration to the over-riding social, public health and economic interest in providing continuity of a mains supply of water during drought periods. We will work with the EA in the coming months to achieve a common understanding on the issues raised in their representation.

### **6.2 Stakeholder communication and liaison**

#### **6.2.1 Communication arrangements**

The EA have indicated that they wish us to include further detail regarding arrangements for communication with key organisations during a drought.

We acknowledge this, and will address this issue by adding the actions listed below to the final Drought Contingency Plan. When the volume of water stored in the reservoirs approaches the first drought control curve, a media campaign is initiated, as stated in our draft plan, in addition we will:

- Initiate a press and media campaign to carry information and advice to all customers. As part of this media campaign we will alert customers to other information and weekly resource situation updates to be provided on our Internet web site.
- We will notify the statutory consultees and others listed in our plan, in writing in regard of the developing situation and the actions the company is planning or implementing, and where further information can be obtained.
- Through our Business Care team, we will advise large industrial customers of the water resources position, and what the future prospects are likely to be. Through this route we will also be asking the large water users if there would be any scope for reducing water consumption through efficiency activity.
- We will make arrangements to establish monthly meetings with the EA area Drought Coordinator if the resources situation deteriorates.

- It will be the discretion of the EA Drought Coordinator to invite other stakeholders to this meeting. However, we would expect the key statutory consultants such as CCW, EN and Ofwat to contribute to these meetings.
- We will publish the minutes of these meetings on our web site, or make them available as paper records to stakeholders that require them.

### **6.2.2 Sharpness abstraction and British Waterways**

The EA noted that we have not indicated what liaison would take place between British Waterways and Bristol Water during a drought. We were not explicit in this regard as such liaison is already part of our day-to-day business operation. It would be inconceivable that our resources situation, or any other matters arising from reduced flows in the Severn, would not be discussed as part of this general process.

We will add the following detail to the final plan:

- The fact that our Drought Contingency Plan assumes that the EA would fulfil its obligation to maintain the statutory minimum flows as described in the EA Midland Region Drought Contingency Plan, and Operating Rules for the Severn Supply System.
- How we communicate frequently and often with British Waterways during the summer period as part of our normal operating routine.
- The contractual agreements in place with British Waterways to reduce abstractions in defined flow conditions when there are low flows on the Severn.
- The contractual operating agreement with British Waterways that commits them to providing our full volume requirement at all times up to the appropriate statutory licensed or contracted volume (excluding operational emergencies).
- That assessment of the water available from the Sharpness Canal takes due account of all these factors.
- We will also include British Waterways in the list of consultees and organisations to be formally advised as the reservoir volume approaches the drought control curve.

## **6.3 Environmental monitoring**

### **6.3.1 Availability of environmental data**

The EA have stated that our draft plan is lacking in baseline environmental information, and the type of monitoring that would be carried out during a drought.

We have worked with the EA while developing our proposals, and have reviewed what data EA have been able to provide in regard of the affected sites. We note that the EA have recognised that the data available is not sufficient for making an assessment of the current baseline conditions.

We have discussed extensively with the EA, what the key environmental criteria and monitoring requirements should be. The EA response to date has effectively been that only a complete environmental monitoring solution for all parameters, carried out to their standards as detailed in their guidelines will be sufficient. We are concerned that the EA has not been able much of the information they are requesting (or identify the base data required).

We note that the EA wishes us to carry out a detailed level of environmental monitoring for areas that are not nationally designated sites. Although we have discussed the issues with the EA, they have not been able to provide any criteria regarding appropriate level of monitoring, or justification that the high level detailed of work they require is appropriate for the circumstances we propose.

The EA consider we are vulnerable if we were to be in a position to consider a drought permit during the next three years, and wish us to complete the environmental analysis and monitoring plan before the final submission of the Drought Contingency plan. Given the current information gap, a considerable quantity of work needs to be done in order to have a robust baseline analysis and monitoring plan. We have consulted with specialists in this field, who consider that the timetable required by the EA is unrealistic.

We believe it is better to develop a properly considered environmental monitoring plan based upon sound evidence, rather than produce a premature plan to comply with an arbitrary deadline. If during in the period up to the next revision of the plan we need to consider reducing compensation discharges, we will make use of the option to apply for a drought order instead of a permit.

We have discussed the issues involved with the data collection and monitoring with environmental consultants. They have indicated:

- The full extent of the data, key issues and gaps in knowledge have not been fully established, and understanding these issues will take some time.
- Because of the lack of data for the affected sites in our plan, a considerable quantity of additional data will need to be collected before any robust environmental assessment can be made.
- It would be unrealistic to be able to collect sufficient new data to confidently establish the baseline environmental conditions by December 2006.
- Without a full understanding of the baseline conditions, it will not be practicable or realistic to produce a robust long term monitoring plan.

### **6.3.2 Further actions for final plan**

We have engaged consultants to carry out the environmental studies for the three sites referred to in the plan. By December 2006, they have agreed to provide the following:

- Liaise with EA, English Nature and other key organisations to establish critical issues and collect all available data.
- An analysis of existing data and identification of missing information

- Establish which data needs to be collected in order to establish baseline conditions
- Prepare an interim monitoring programme to collect missing data during the period up the DCP review in 2010
- Establish the long term monitoring programme requirements
- Prepare a interim monitoring programme to collect relevant data for periods during and after a drought period.
- Include an environmental report and appropriate information with our final plan.

We will arrange to collect the missing baseline data identified in the environmental studies between 2007 and 2009. This will provide a complete and valid environmental assessment before the 2010 DCP. By that time, we will be able to use the evidence base to report fully the existing environmental baseline conditions. The probable extent and duration of the effects of reducing compensation flows will be fully understood, and the interim monitoring plans may be reviewed or amended as required.

With this improved understanding, it may be possible to establish what mitigation measures would be appropriate.

## **6.4 Demand management & drought actions**

### **6.4.1 Forecasting water availability**

The EA wish us to provide more information on the operational techniques used to forecast water availability during drought and how we might predict the medium term water in storage, so that we may implement a hosepipe ban at an early point in the year, before the appropriate control curve is reached.

We have provided in our draft plan the reservoir control curves that we use and explained how we monitor the volume of water remaining in the reservoirs against the control curves. This informs our decisions in respect of drought activity. These control curves have been developed so that they factor in dry conditions over the year. Unless there is a reduction of output or loss of another source, we would be unlikely to impose restrictions on customer use at an earlier point than indicated by the control curves provided. An example of where this might be done would be the implementation of additional river Severn abstraction restrictions by the EA. This would unexpectedly reduce the amount of water that we could supply to Bristol from that source, resulting in an increase in rate at which the reservoirs would be drawn down. It may be appropriate to implement a hosepipe ban to reduce demand under these circumstances.

We will provide further information in our final plan on how we forecast reservoir storage over the critical and the re-charge periods.

### **6.4.2 Enhanced network management**

The EA state that 'Bristol Water has 'lumped' together several demand management measures into a single drought action called network operations' The Company has allowed a total saving of up to 1 Ml/d for all stages of the network operations option. The EA wish us to disaggregate these components. The EA indicates that it considers the water saving we

have projected to be too low for this range of measures, but have not provided any information as to what informs their opinion.

The company already operates at its economic level of leakage. As a consequence, resources in terms of manpower and equipment are only available to maintain this level of leakage activity. The scope for significant additional reductions in leakage during a likely drought period is very limited because:

- Over 45% of customers are already within active, valve controlled pressure reduction zones.
- For the remainder of the network, active pressure control has been already been assessed as infeasible or impractical because only zones with small numbers of properties could be created. Even if these few additional zones were to be created the volumetric savings would be negligible.
- Further large pressure reductions over such a large part of the network during dry periods may result in failed levels of service regarding system pressure, affecting customers internal plumbing systems, and compromising the safety of vulnerable customers, fire and sprinkler systems.
- It is not practicable to recruit, train, and make operationally effective new leakage control, and mains repair crews within the short six to eight month critical period of drought.
- Our effort would focus mainly on diverting existing resources to repair reported leaks even faster, and target domestic supply pipe repairs. However, the majority of detected bursts are already repaired in less than two days, so the scope for significant reductions in repair time is limited.
- We could serve waste notices on leaking service pipes, and repair them within seven days instead of the normal six weeks under the Leakstop scheme. However, we would still need a reasonable notification period in order to allow the customer the option to carry out the work independently if they desired.

We have no historical data upon which to base this estimate of savings from extra leakage control, other than the audited annual results of the Leakstop initiative. We believe that by advertising and increased effort in this function, we could double the normal water saving of 0.5 Mld to 1 Mld.

The remaining 0.5 Mld reduction in leakage we expect to obtain from a combination of strictly monitored pressure control and district metering, together with an even faster rate of burst mains repairs.

The proposed leakage reduction of 1Mld in the daily leakage represents 2% of the total, and is substantial in terms of the cost and effort that will be required to achieve this. We consider our approach to be a sound, realisable estimate of the maximum saving that could be achieved from substantially enhanced network activity, on a system that is already operating at high efficiency.

### **6.4.3 Restrictions on domestic use of hosepipes and sprinklers**

The EA consider that our projected water saving of 23 Mld from a media campaign and hosepipe bans during summer months is at the lower end of their expected range for such measures. The effect of a hosepipe ban is to opportunistically reduce discretionary water use (i.e. during summer). There is little evidence in the industry that these savings can be maintained over the full critical period where this extended into winter. Our projection means domestic customers would be expected to reduce their consumption by over 12% in the hottest months of the year. This represents a substantial short-term water saving

It is probable that during a severe drought, the impact of a hosepipe ban would be greater, but cannot rely upon this or plan for only the most benign outcomes. We intend to keep this issue under review, and will be interested in the analysis of the effects of demand restrictions in the SE of England when the current dry period ends. We may be able to use this new data to inform future updates of the Drought Contingency Plan.

Current data from the south east of the country indicates that the various restrictions to customer use have reduced demand in the peak months of the year by up to 10%. Our estimate of the effect of a dry weather hosepipe ban is slightly lower than this, indicating a reduction of the order of 8% of total water supplied. However, we would consider it prudent for planning purposes not to over-estimate what level of water savings our customers would be prepared to make. After consideration we do not seek to modify our assumptions.

The Company has not had a significant period of hosepipe bans since 1976, and therefore has little evidence upon which it could model the effect of a long period of customer restrictions. We have used a methodology developed by the EA in partnership with UKWIR described in report WR/06/02 'Evaluating the Impact of Restrictions on Customer Demand' to estimate the consumption of all forms of discretionary water use. This analysis is based upon real demand data and discretionary external water use information collected during the hot dry summer of 1995/96. In our analysis, we saw no benefit in disaggregating differing type of hosepipe use. When implementing a hosepipe ban, we are seeking to prevent this particular type of discretionary garden water use, irrespective of the category of the device. However, not all discretionary water uses will be prevented, as customers will continue to water their gardens and wash their cars using watering cans and buckets.

The EA consider that the company may have underestimated the savings it can achieve from customer restrictions by presenting this option as a combination of measures. We are concerned that the EA may be being imprudently optimistic in their assessment of the long-term efficacy of a hosepipe ban and media campaign.

Media campaigns and restrictions on customer use will predominantly impact domestic customers. Commercial and industrial consumption is not expected to decrease, and may actually increase (agricultural and food production uses for example). We have considered the effect of appeals and hosepipe bans separately in our analysis, but we would expect a hosepipe ban would only be effective with a continuation of a full media campaign, so have presented the effects of combined measures in our analysis. The activity to reduce leakage has been discussed above.

#### **6.4.4 Winter demand restrictions**

The EA see some benefit in the implementation of hosepipe bans during winter months, and wish us to confirm that we have not ruled taking such action.

We see little benefit in the application of a full ban on hosepipe use in winter and would expect a media campaign and appeals for restraint to be more publicly acceptable. However, we do not rule out the possibility of such action, and will state this in the final plan.

#### **6.4.5 Drought orders – Ban on non-essential uses of water**

The EA obliges water companies to apply for drought orders to restrict non-essential demand before they will consider any drought permit application to modify abstraction conditions. We believe that the EA should reconsider this policy in the context of their obligation to facilitate a secure water supply for the greater social and economic benefit.

The EA believe that Bristol Water could achieve greater savings than the 1 MI/d the company has assumed for this option. It is also the opinion of the EA that this larger saving could be achieved while simultaneously implementing the ban in such a way that economically and socially damaging restrictions are avoided.

A ban on the non-essential use of water has the potential to cause damage to the businesses affected, yet the effective water saving is minimal. If circumstances are so severe as to require a non-essential use ban, we consider it should be as effective as possible and designed to maximize water savings. We will operate such a ban as sensitively as possible under the circumstances.

The Drought Direction of 1991 lists the following water uses that may be proscribed by order of the Secretary of State:

- The watering by hosepipe or sprinkler of allotments, parks, sports fields or other recreational areas
- The filling of privately owned swimming pools and ornamental ponds
- The operation of ornamental fountains and cascades
- The operation of mechanical vehicle washers
- The washing of road vehicles, boats, rolling stock and aircraft
- The cleaning of windows by hosepipe or sprinkler, etc.
- The exterior washing of buildings other than windows
- The cleaning of industrial premises or plant, other than for hygiene reasons
- The use of automated cistern flushing systems during periods when buildings are substantially unoccupied

As may be observed from the list above, a non-essential use ban operates on a relatively small area of domestic and commercial water demand. In addition, in most of the commercial sectors such as car washing plants, there are already water efficiency measures, or water recycling in place. This does not allow significant scope for large savings in consumption.

Building, plant and automated vehicle washing is not a significant component of water demand. However, to those operating such businesses, the use of water is may be critical to the viability of the enterprise. We would certainly consider a phased approach to applying the drought order to the various classes. However, this will reduce the effectiveness of the non-

essential use ban as it could then only impact on watering of grounds, filling of swimming pools, or operation of fountains.

We will consider this aspect further and indicate how and to what sectors we would apply the drought order to ban the non-essential use of water in the final version of our Drought Contingency Plan.

## **6.5 Supply improvement options**

### **6.5.1 Use of existing sources**

The EA have identified that we have three water sources that have been suspended from normal operational use due to issues of economics and water quality. They have expressed concern that we have not allowed for a lead-time in which to make these sources operational.

These sources would be viable during drought periods, and all have the critical infrastructure in place to operate at short notice. For all of these sources, simple, but adequate treatment plant remains available on site.

The Company draft plan indicates that we have clearly allowed a significant lead-time of eight to ten weeks prior to the implementation of a hosepipe ban to return these sources to service. No substantial programme of civil works or engineering is required to make these plants operational. The primary reason for lead-time we have indicated is, to stock the sites with treatment chemicals, perform basic operational checks and minor repairs, establish a sampling regime and gain DWI approval for the required cryptosporidium monitoring.

As the main raw water reservoirs fall in level, the water quality begins to deteriorate. This is manifested by reduction in oxygen levels, large blooms of algae and inadequate pumping volumes due to low water levels. The draft plan proposes a number of schemes to overcome these problems to permit continuity of abstraction at low water levels.

The EA have suggested that we should use a storage value of 10,000 MI in order to develop a clear trigger for the implementation of these schemes. We believe that the drought control 3 planning curve is more appropriate, as it is forward looking. However, the text in the draft plan does not make it entirely clear that these engineering schemes may be required at any point during the year when the combined storage is close to or below 10,000 MI.

It may not always be appropriate to rely only upon a simple measurement of reservoir volume for the implementation of these schemes. However, we recognise the point being made by the EA. We will clarify the text in our final plan to indicate that activity to maintain abstraction from reservoirs is likely to take place at any time during the year when volumes approach or are below 10,000 MI.

### **6.5.2 Emergency source development**

The EA have indicated that we should investigate in further detail the large-scale engineering scheme we have proposed to abstract water from Bristol City docks. They are concerned that the risks and uncertainties are not fully understood, and that the lead-time to complete all of the works requires may be greater than six months.

This new proposal replaces a scheme described in earlier plans to transfer water 16 Km from the river Avon at Bath, to Chew valley reservoir. To make this scheme viable, a new river intake, a raw water treatment works and major new power supply connection would have

been required. We no longer consider that all of these works could be completed within the critical drought period under the current planning and legislative frameworks.

The Bristol City docks scheme has the advantage of requiring only limited new infrastructure. For example, suitable secure locations for submersible abstraction pumps exist, significant lengths of main are already in place and there are suitably sized power supplies available at key locations. The enhanced treatment works at Barrow should be able to cope with the relatively poor quality water expected from the City docks. We are aware that there remain significant uncertainties regarding this scheme. We expect to investigate all of the requirements in detail in order to fully understand the critical issues for such a project. It is anticipated that this work will be completed in time for the revision of the Drought Contingency plan in 2010. The aim of this work will be to ensure that the project as currently described could be delivered within six months. If this is not the case, we will need to investigate if the pre-placement of certain infrastructure components could be considered in order to reduce the construction time.

Despite all of the current uncertainties surrounding the new scheme, we believe that it provides the best option investigated to date that could make significant quantities of water available in the least possible time.