SEVERN TRENT WATER LTD

Non technical summary of

Final DROUGHT PLAN 2014

Prepared by the Water Resources Strategy Team
Water Services
Severn Trent Water Limited
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About Severn Trent Water

Severn Trent Water provides water to 7.7 million people, and sewerage services to 8.7 million people in an area covering 21,000 square kilometres in the Midlands and mid-Wales. We are one of the largest water companies in England and Wales, supplying around 1,800 million litres of water per day. Of this supply approximately:

- One third of our water comes from river abstractions
- One third comes from reservoirs and
- One third comes from groundwater (such as boreholes).

We have a significant impact on our communities and regional economy, through the services we deliver, as a major employer and as a purchaser of goods and services. We also have a significant impact on the local environment through abstraction of water and discharge of waste water and through our management of our public access recreational sites. We recognise our responsibility to take full account of our impact on the local community and environment in everything we do.

For further information on the business, please visit www.stwater.co.uk.

What is a drought?

A drought is a period of abnormally low rainfall. But all droughts are different and there are different types of drought. The type of drought depends on where the rainfall is abnormally low, how much lower than normal it is and how long the drought continues for. Different types of drought include agricultural, meteorological, environmental and public water supply droughts. For the purposes of our drought plan we are primarily focused on how droughts affect public water supplies and the environment.

What is a drought plan?

As droughts are naturally occurring events we can not plan to prevent them from happening. Instead, we plan to minimise the impacts of droughts when they do occur. A drought plan explains how we will effectively manage both supplies and demand for water during a drought in our region. It shows what actions we will take and when we expect to take them. We sometimes refer to these actions as ‘drought management actions’. Our drought plan aims to balance the competing interests of customers, the environment and the wider economy.

Why do we produce drought plans?

We are legally required to produce drought plans and to run public consultations giving people a chance to comment on them. We are also legally required to update these plans within three years and six months.

As well as being a legal requirement these plans are vital for us to properly manage our system during dry periods. For example, between 2010 and early 2012, parts of our region were affected by an exceptional lack of rainfall. During this time we implemented many of the measures described in our 2010 drought plan. We also learned more about the flexibility of our water supply network and our strategic grid and we were able to avoid the more extreme drought response measures described in the 2010 plan. Our updated drought plan reflects what we have learned whilst managing the dry conditions that affected parts of our region from 2010 to early 2012.

The main differences between the 2014 drought plan and our 2010 plan are that:

- It now reflect the latest guidance from Defra and the Environment Agency (EA);
- We have included lessons that we learned during the dry weather during 2011 and 2012;
- We have updated the environmental reports and ongoing monitoring that would support any future drought permit or drought order applications; and
- We have revised our demand management activities to take account of the changes in legislation around the use of temporary usage restrictions.

Our drought plan balances the need to meet the EA's requirements with the requirement to retain operational flexibility. One of the lessons that we have learned whilst implementing drought management actions in recent years is that our drought plan needs flexibility to allow timely decision making and implementation of the appropriate actions. The fact that we have met our customers' demands without restrictions since 1996 indicates that our current drought management processes are robust. This is especially true considering that the 12 month period to February 2012 was the driest in the Midlands region since records began in 1910 (source: EA water situation report, February 2012). Despite this we are constantly challenging ourselves to improve where possible and we review our drought planning processes at least once a year.

When we produce drought plans and other plans (such as water resources management plans) we make consistent assumptions. For example, in both plans we assume that the levels of service that our customers can expect are that:

- We will need to restrict customers' use of water, on average, no more than three times every 100 years
- We consider that rota cuts/ standpipes for our customers are unacceptable as a response to drought.

Although we plan to implement what are often called ‘hosepipe bans’ less than most water companies we do this at the lowest possible cost to our customers. If we planned on the basis that we will never impose restrictions even during times of drought, it would not be economically or environmentally feasible to meet unrestrained consumer demand in all possible circumstances. If we planned never to restrict the use of water, customers’ bills would have to be higher.

We prepare business plans and water resources management plans every five years. When we prepare these plans we work out what we need to invest to maintain our current levels of service. Speaking to our customers and stakeholders is a crucial part of this process.

Do drought plans account for climate change?

Drought plans are operational plans to show how we will manage a drought within the next few years. As they are short term operational plans they make no explicit allowance for the impacts of future climate change. This is consistent with the Environment Agency guidelines.

However we also produce water resources management plans (WRMPs). Our WRMPs show our analysis of the impact of climate change on our water resources. We published our revised draft WRMP in November 2013 and it is available at www.severntrent.com/wrmp

Drought indicators and drought triggers

In order to know when to implement our drought plan we need to know when a drought is developing. To do this we monitor indicators such as rainfall. As part of our normal, weekly operations we monitor the following indicators:

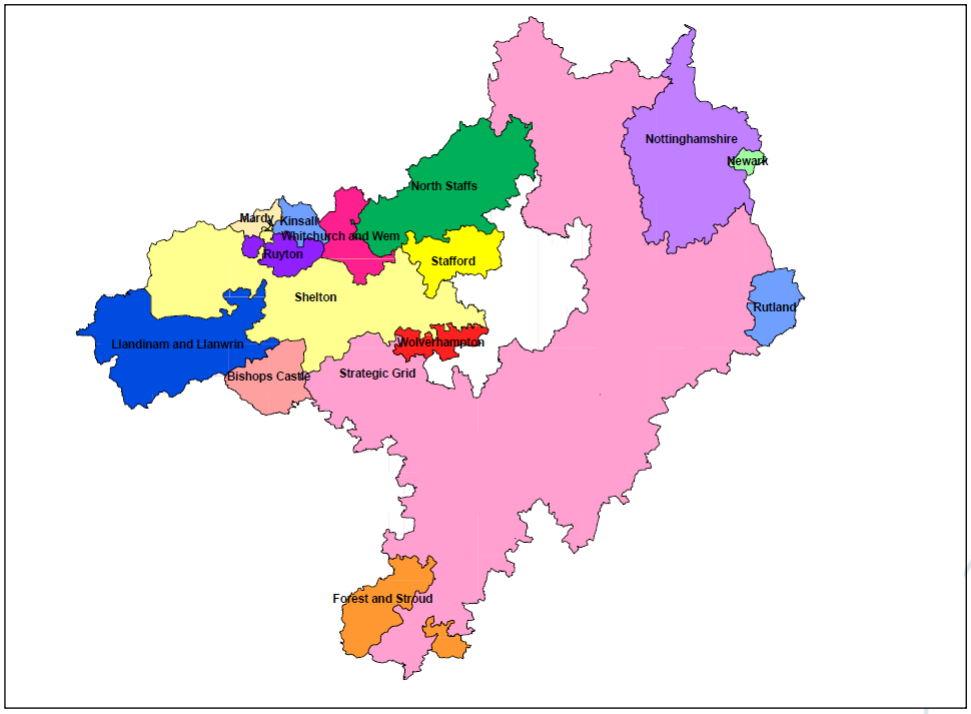
- Rainfall deficits: for example, if rainfall over several months is below the long term average it can indicate that a drought is developing
- Soil moisture deficit (this is a measure of how dry soils are)
- Low river flows: particularly in the rivers from which we abstract water
- Falling groundwater levels
- Falling reservoir storage.
- Temperature
- Levels of customer demand
- Leakage and
- The amount of water that we take from surface and groundwater sources.

Surface water sources are rivers and reservoirs. Groundwater sources are generally boreholes or springs. These use water that is stored underground. Once we have established that a drought is developing we refer to drought triggers. These triggers help us to take the right actions at the right time.

Our water resource zones

We usually manage water resources and droughts at a water resource zone level. The Environment Agency definition of a water resource zone is the "largest possible zone in which customers share the same risk of a resource shortfall". Figure 1 shows our 15 zones:

Figure 1 Severn Trent Water's new water resource zones



Reservoir drought triggers

We manage droughts by using reservoir drought triggers in the following three water resource zones (WRZs):

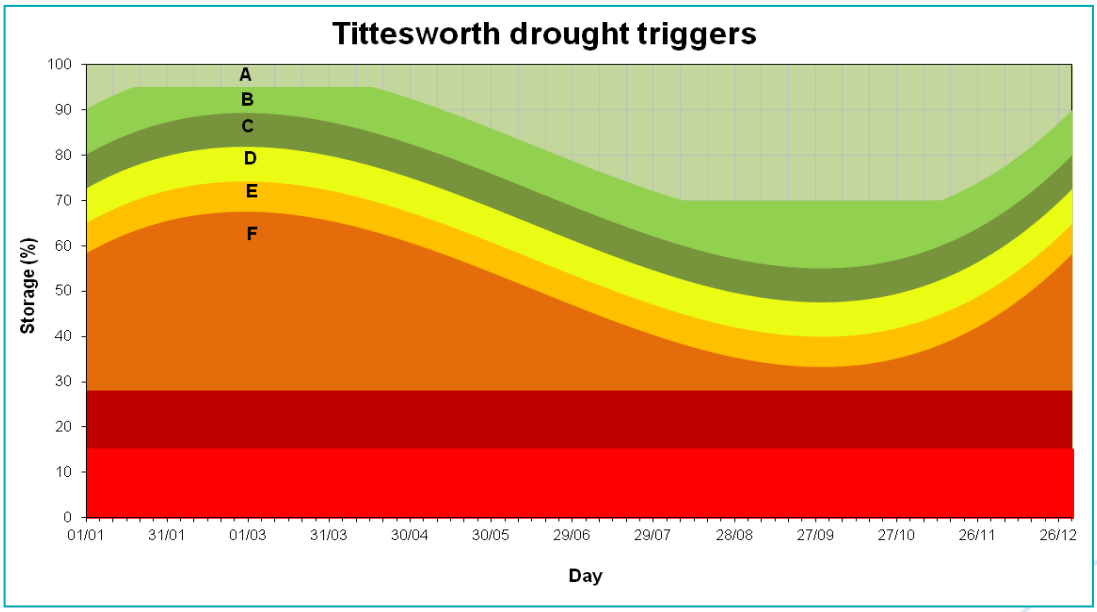
- Strategic grid
- Nottinghamshire and

- North Staffordshire.

Taken together, these three WRZs make up over 85% of the total population of our region. We have produced drought action triggers for the major reservoirs in our strategic grid and North Staffordshire WRZs. We also include the Nottinghamshire WRZ here as it receives a significant supply of water from the strategic grid zone. Therefore the water resources position in the Nottinghamshire zone depends upon the resources position in the strategic grid. We describe the approach that we take in our other WRZs later in this document.

In the three WRZs listed above we monitor how the storage in our strategic reservoirs varies and this guides how we operate our system. We have produced drought triggers to help this process. An example of these drought trigger zones can be seen below:

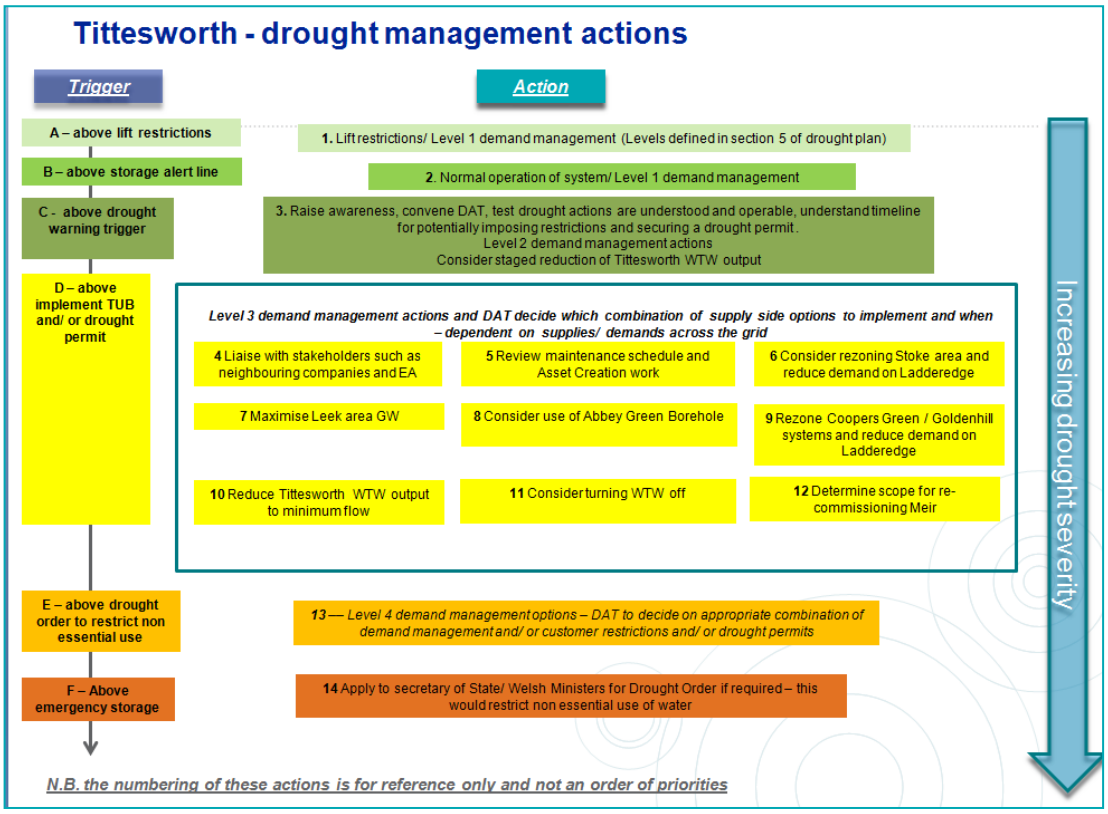
Figure 2 - Graph showing drought trigger zones for North Staffordshire



In order to take the appropriate drought management action at the correct time we monitor reservoir storage and also refer to 'decision flow charts'. These show which actions we can take when reservoir storage enters a specified trigger zone. These actions are both supply side and demand side. This means that they either increase the amount of water that we have available or reduce the amount that we need to supply.

Figure 3 illustrates the decision flow chart associated with Tittesworth reservoir storage and sets out the operational actions we may take in North Staffordshire. We have similar charts for other reservoirs.

Figure 3 - Decision flowchart showing the drought management actions we would take in North Staffordshire



River or groundwater drought triggers

We have a similar approach to drought in our other WRZs. As these zones do not have strategic reservoirs we use river flows and/ or groundwater levels as our drought triggers. Some of these other WRZs, such as our Llandinam WRZ, receive all of their water supplies from groundwater. There are others, such as our Shelton WRZ, that receive supplies from both groundwater and river abstractions. In these other WRZs we refer to decision flow charts that are similar to that shown above.

Restricting customers use of water

As shown in figure 3, if we were in drought trigger zone E we would consider customer restrictions. In 2010, the law regarding 'hosepipe bans' changed. Before 2010 water companies were allowed to restrict the use of a hosepipe if it was being used to water a garden or clean a private car. Since 2010 we have been given wider and more far reaching powers.

We can now restrict use of water either with:

1. A temporary use ban (or TUB) or
2. If the drought is even more severe, by applying a non essential use ban (or NEUB).

Since the change in the law these restrictions are not technically called 'hosepipe bans' anymore although some people still use this phrase. A temporary use ban allows us to restrict the 11 activities listed in our drought plan. We would not expect to introduce a non essential use ban unless we entered drought trigger zone F. If we did introduce a non essential use ban it would allow us to restrict the 10 activities shown in our drought plan.

How would we bring in restrictions?

We would only expect to bring in restrictions between April and October as we do not think that they will save much water at other times of year. If we need to restrict our customers use we will refer to the most up to date 'Code of practice and guidance on water use restrictions' that UKWIR has produced.

UKWIR is a United Kingdom wide organisation that carried out research for the water industry. The main principles of this code of practice are to ensure that companies communicate clearly, restrictions are fair and proportionate and that they are as consistent and transparent as possible. We agree with these principles and think that referring to this code of practice will make our drought communications clearer, easier and more consistent with those of other water companies.

If we need to restrict customers' use will liaise closely with stakeholders such as the Consumer Council for Water, the Environment Agency, Natural England, Natural Resources Wales/ Cyfoeth Naturiol Cymru, Water UK and Government.

Would we make exceptions?

For both types of restriction (TUBs or NEUBs) we will make exceptions for certain users. This means that the restrictions would not apply to everyone. Some of these exceptions are statutory but others are at our discretion. The statutory exceptions are ones that we

have to make them legally. An example of a statutory exception is that if a customer needs to use water for health and safety reasons then we would not restrict this.

There are other exceptions that are discretionary. One example of a discretionary exception is that, when we introduce a temporary use ban, we will not initially restrict businesses that depend upon these uses of water. Our approach here reflects the fact that we would want to delay the impact of any restrictions on people's businesses for as long as possible. We describe our approach to phasing and provide a table showing all of the exceptions we plan to make in our main plan.

If we expect to introduce restrictions then we plan to give our customers a notice period of 14 days. This allows customers to contact us if they want to discuss the implications of the restrictions. Although we have not restricted customers use since 1996 we will draw on the experience of other water companies who have imposed restrictions much more recently. One way that we will do this is by using an approach consistent with the UKWIR code of practice.

Drought orders and permits

If a drought continues to intensify even after we have introduced temporary use bans we will need to consider using drought permits or drought orders. A drought permit is a way in which the Environment Agency can give a water company permission to abstract water when it would not normally be able to do so. A drought order can grant similar powers but it also allows companies to vary discharge arrangements and to restrict non essential use of water. Defra can grant drought orders. There needs to be an exceptional shortage of rainfall for either a drought permit or for a drought order.

We have prepared our drought plan so that we will need to resort to these measures as infrequently as possible. We have set out the places where we think we may need a drought permit or drought order in our main drought plan. We have also provided more detail about what the drought permits or drought orders would involve and how they would help us to manage a drought in our main plan.

Environmental impacts and monitoring

We have considered the environmental impacts of all of the drought management options in our main drought plan. We have provided the most detail on the possible

impacts of drought permits or drought orders on the environment. There are more details of our environmental assessments in the main drought plan and in separate environmental assessment reports.

One way in which we assess the environmental impacts of implementing our drought plan is by monitoring before, during and after the drought. Monitoring involves recording or measuring things like flows in water courses and numbers of fish. This gives us data so that we can tell what effect a drought management action has on the environment.

Strategic Environmental Assessment (SEA) and Habitat Regulations Assessment (HRA)

We have produced an SEA and HRA to accompany our drought plan. These assessments are methods to ensure that we fully understand the environmental impacts of anything that we propose in our plan. The HRA looks especially at any potential impacts on sites that are of such environmental importance that they have been given protection by European Directive.

Mitigation measures

Mitigation measures are things that we would do if we think that our actions have caused any damage to the environment. We aim to avoid environmental damage in the first place. But if our actions did result in damage we would take appropriate steps to 'mitigate' this. We give details of these measures in the main plan.

Management structure/ roles and responsibilities

We have a drought action team (DAT) which makes decisions on which actions to implement and when to implement them. This team is chaired by our water services director and includes representatives from several teams within the company. Most of these actions are for us, Severn Trent Water, but some involve working with stakeholders. These stakeholders include, but are not limited to, the Consumer Council for Water, Natural Resources Wales/ Cyfoeth Naturiol Cymru, Defra, Ofwat, the Environment Agency, local authorities, Natural England, Water UK and neighbouring water companies.

Communications and demand management

It is vital that we have a clear communications route to our customers and other stakeholders. This means that we can communicate the correct messages at the correct time. We show a table in our main plan that sets out the communications plan that we will follow at different stages before, during and after a drought. In summary, our communications will:

- Convince customers that their contribution to water efficiency is worthwhile
- Explain to customers in simple terms how they can save water and
- Convince customers that we are doing our bit to manage water resources wisely.

As a drought deepens, we will show customers we are doing our bit by spending even more time, money and effort than usual on reducing leakage and promoting water efficiency.

Lessons learned from previous droughts

We have learnt from previous droughts and use this learning to improve how we manage droughts in the future. Since we published our previous drought plan in 2010 we have constantly challenged ourselves as a business to look at all actions available, even ones that we had previously considered impractical. This meant that we implemented any feasible actions that provided a benefit.

Annual Review

We review our drought planning procedures at least once a year to ensure that our plan is current, feasible and understood within the company.

Post-drought actions

We define the end of a drought as when our water resources' availability has returned to 'normal'. Indicators of the end of a drought are that:

- There have been several months of average or above average rainfall (winter rainfall usually provides greater recharge)
- Reservoir storage has recovered, for example, storage in the majority of reservoirs is in drought trigger zone A or B
- River flows have returned to normal
- Groundwater levels have returned to the normal range

Once the drought is over we will review how effective our drought management has been. This will include a review of how effective our communications and other actions such as our extra leakage reductions and increased water efficiency campaigns have been in terms of reducing demand.