



# **A summary of our Drought Management Plan**

---

Affinity Water

November 2018

---

**Security Notice**

*This document has been written in compliance with our security policy so that no redaction is required for publication. Codes have been used to preserve the security of our production locations.*

---

# Table of Contents

- 1.1 Welcome to our Drought Management Plan ..... 4
  - Introduction from Director of Asset Strategy ..... 4
  - 1.1.1 What is a drought?..... 5
  - 1.1.2 What is a Drought Management Plan? ..... 5
- 1.2 Managing a drought ..... 6
  - 1.2.1 Types of drought..... 6
  - 1.2.2 Levels of service ..... 7
- 1.3 Drought triggers ..... 8
- 1.4 Managing demand for water in a drought..... 9
  - 1.4.1 Publicity campaigns ..... 9
  - 1.4.2 Leakage..... 9
  - 1.4.3 Temporary Use Bans (previously known as hosepipe bans) ..... 9
  - 1.4.4 Drought Order Restrictions ..... 10
  - 1.4.5 Emergency Drought Orders ..... 10
- 1.5 Increasing water supplies in a drought..... 11
  - 1.5.1 Making the most of available water supplies ..... 11
  - 1.5.2 Bringing old sources back online ..... 11
  - 1.5.3 Water transfers ..... 11
  - 1.5.4 Drought Permits..... 12
- 1.6 Protecting the environment ..... 13

## 1.1 Welcome to our Drought Management Plan

### Introduction from Director of Asset Strategy

Welcome to our Drought Management Plan non-technical summary.

The Drought Management Plan outlines the way we would respond in a drought situation and the actions we would take as it progresses. This plan, if put into action, has the potential to impact the way our customers use water and the local aquatic environment.

We operate in a dry and densely populated area of the country and are at risk of experiencing droughts. Our aim is to ensure we are better prepared for these events than ever before.

This plan is based on the company's previous experience of drought events and how we have managed them.

I hope you find this document helpful, and if you have any questions or comments, please share them with us.

Director of Asset Strategy



#### About us, at a glance....

-  3.6 million customers
-  We supply 900 million litres a day
-  In 16/17 we invested £100 million
-  16,500km<sup>2</sup> of pipes
-  In 2016 99.96% of all water quality tests complied with regulatory standards

### **1.1.1 What is a drought?**

Droughts are natural events that happen when there are extended periods of low rainfall that create a shortage of water for people, the environment, agriculture or industry.

However, every drought is different – in terms of where they happen, how long and severe they are, and the impact they have on customers, communities, businesses and the environment.

With such uncertainty, it is important that we make plans to manage drought, whatever the weather.

### **1.1.2 What is a Drought Management Plan?**

Our Drought Management Plan for 2018 - 2023 sets out how we will manage a drought, the actions we will take and when we will take them.

The plan outlines what we would do to inform customers about a drought; how we would work with customers to reduce consumption; the restrictions we would place on household and commercial customers; and what we would do to increase supplies by taking more water from the environment.

It does not cover investments into new infrastructure to avoid drought. Investment is sought through the Water Resource Management Plan and Business Planning process.

## 1.2 Managing a drought

The majority of the water we supply comes from aquifers around 80 meters below the ground.

Aquifers are pockets of porous rock that store groundwater. In our supply area, the aquifer is made of chalk and feeds our local rivers and globally unique chalk streams. When groundwater levels are high, the rivers flow as normal, when they are low, some rivers will begin to dry out.

Groundwater levels are heavily influenced by weather and seasonal variations. However, our operations can also affect groundwater levels which is why we pay close attention to the impact this has on the environment.

### 1.2.1 Types of drought

The focus of our Drought Management Plan is on what we need to do to maintain customers' water supplies while also protecting the environment.

There are three main types of drought that we need to plan for:

- A single season drought

If we have a dry winter, where we receive significantly lower than average rainfall, our groundwater aquifer sources are not replenished. Lower groundwater levels will lead to lower flows in some local rivers. Because of our reliance on groundwater, in these instances we may take action to preserve water supplies such as asking customers to voluntarily reduce water usage, and, if necessary, introduce some usage restrictions.

- Two dry-winters drought

If we have two back-to-back dry winters many of our water sources are likely to be impacted. Our groundwater levels will be significantly reduced and because of this, there will be lower flows in most local rivers. It's possible that in this instance, water use restrictions for households and businesses will be needed.

- Longer-term drought (three dry winters)

While we have never experienced this type of drought, we do still have to plan for it. If this happened we would potentially have to introduce all the actions in our Drought Management Plan – including emergency actions to take more water from the environment and more onerous water use restrictions for household and business customers.

## 1.2.2 Levels of service

### *The average likelihood of introducing usage restrictions on customers*

Our Drought Management Plan is based on the frequency of the actions we need to take to maintain customers' water supplies during a drought. We have previously consulted with customers on this and the frequency of restrictions is based on their feedback.

Water supply levels of service are a measure of the likelihood of applying restrictions on customers during drought conditions; they set out how often on average we expect that we will need to take a specified step in response to a drought.

Drought Management Action	Frequency
Temporary Use Ban (TUB) – these restrict certain types of activities that use a hosepipe	1 in 10 years
Drought Order Restrictions	1 in 40 years
Drought Permits – we apply for these to allow us to take more water from rivers and underground aquifers	1 in >40 years
Emergency Drought Order – these allow us to abstract more water, which can lead to environmental damage	Considered unacceptable

Any improvement to these levels of service would require investment in the network in order to improve resilience and flexibility. Investment for any changes is sought through the Water Resource Management Plan and Business Plan process.

Our research has told us that these service levels are acceptable to the majority of our customers.

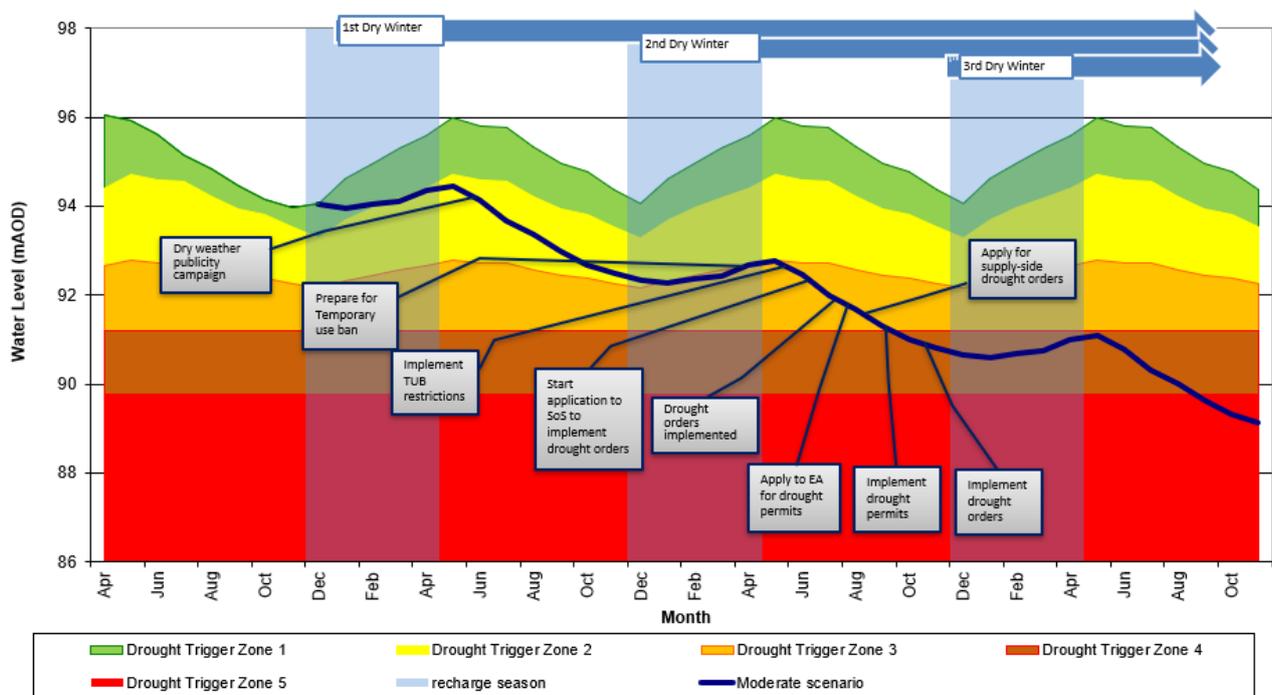
### 1.3 Drought triggers

Supplying water to our customers is a 24/7 business. We continuously monitor rainfall, how our water sources are doing, and how much water is being used.

When our water sources reach certain levels, we use `triggers' to determine the actions we need to take – before a drought happens, as a drought develops, during a drought and after levels have recovered.

These triggers also give us enough time to plan and deliver the actions, as well as make sure we communicate what we are doing.

The chart below shows our drought trigger zones. The dark blue line gives an example what would happen if we were to experience three dry winters in a row, and how we would respond as groundwater levels moved through each trigger zone.



In addition to the actions outlined above, we would also do more to reduce leakage on our network; carry out work to make our water works as efficient as possible; and closely monitor the environment to assess the impact the drought was having on the aquatic environment.

## 1.4 Managing demand for water in a drought

---

These are the range of actions we could take to manage demand for water as a drought progresses.

### 1.4.1 Publicity campaigns

We would launch media and publicity campaigns to inform customers and communities about the potential impact on their water supplies, what they can do to reduce their water use, and what we are doing to ensure there is enough water. Our Water Saving and Education teams would also be increasing their work and activities too, including giving out free water saving devices.

### 1.4.2 Leakage

We are already committed to ambitious leakage targets. However, in the event of a drought we would go even further. We would aim to manage leakage more strategically by ramping up work in areas which are considered more vulnerable to the effects of drought.

### 1.4.3 Temporary Use Bans (previously known as hosepipe bans)

#### ***Restrictions on household customers***

Temporary Use Bans (TUBs) can restrict the use of water for certain activities, but we only introduce these when absolutely necessary. They can prohibit:

- Watering a `garden` using a hosepipe (the term `garden` covers things like parks, verges, sports pitches and allotments)
- Cleaning a private motor-vehicle using a hosepipe
- Watering plants on domestic or other non-commercial premises using a hosepipe
- Cleaning a private leisure boat using a hosepipe
- Filling or maintaining a domestic swimming or paddling pool
- Drawing water, using a hosepipe, for domestic recreational use
- Filling or maintaining a domestic pond using a hosepipe; and
- Filling or maintaining an ornamental fountain
- Cleaning walls, or windows, of domestic premises using a hosepipe
- Cleaning paths or patios using a hosepipe
- Cleaning other artificial outdoor surfaces using a hosepipe

Some customers or activities are automatically exempt from Temporary Use Bans – due to disability, safety concerns and commercial considerations – while other customers can also ask to be exempted.

***Full details of the current exemptions we are proposing can be found in Section 5 of our Drought Management Plan.***

## 1.4.4 Drought Order Restrictions

### ***Restrictions on non-household customers***

In addition to Temporary Use Bans, we can apply for a Drought Order from the Secretary of State which could also restrict:

- Watering outdoor plants on commercial premises
- Filling or maintaining a non-domestic swimming or paddling pool
- Filling or maintaining a pond
- Cleaning non-domestic premises
- Cleaning a window of a non-domestic building
- Operating a mechanical vehicle-washer
- Cleaning any vehicle, boat, aircraft or railway rolling stock
- Cleaning industrial plant
- Suppressing dust
- Operating cisterns in any building that is unoccupied or closed

Similar to TUBs, some customers or activities are automatically exempt from non-essential water use restrictions. Full details of the current exemptions can be found in Appendix 4 of our Drought Management Plan.

## 1.4.5 Emergency Drought Orders

### ***Extremely unlikely, but necessary to consider for extreme situations***

Emergency Drought Orders have not been needed in the UK by any water company since 1976 – and if we had the same type of drought now as in 1976, we wouldn't need one anyway due to the significant investment made in water supply systems. However, our Drought Management Plan needs to allow for this to happen if the drought is so serious we have to take further action. This could include taking emergency action to restrict water supplies in certain areas at certain times of the day – these actions would be covered by our Emergency Plan.

## **1.5 Increasing water supplies in a drought**

---

This section discusses what we would do to increase the amount of water we can supply to customers. We would particularly like your views on our drought permit plans.

### **1.5.1 Making the most of available water supplies**

We would make sure as many of our water treatment works are online and running as efficiently as possible. This means reducing or delaying some maintenance or building works that take them offline. It also means making sure we are abstracting and treating the maximum amount of water from rivers and aquifers that we are allowed to.

### **1.5.2 Bringing old sources back online**

We would look at how quickly we can bring disused, disconnected or abandoned water sources back into operation, and how much extra water they would give us during a drought - and then take action.

### **1.5.3 Water transfers**

We have two transfer options to ensure customers have water at their taps whilst doing what we can to mitigate the impact this has on the environment:

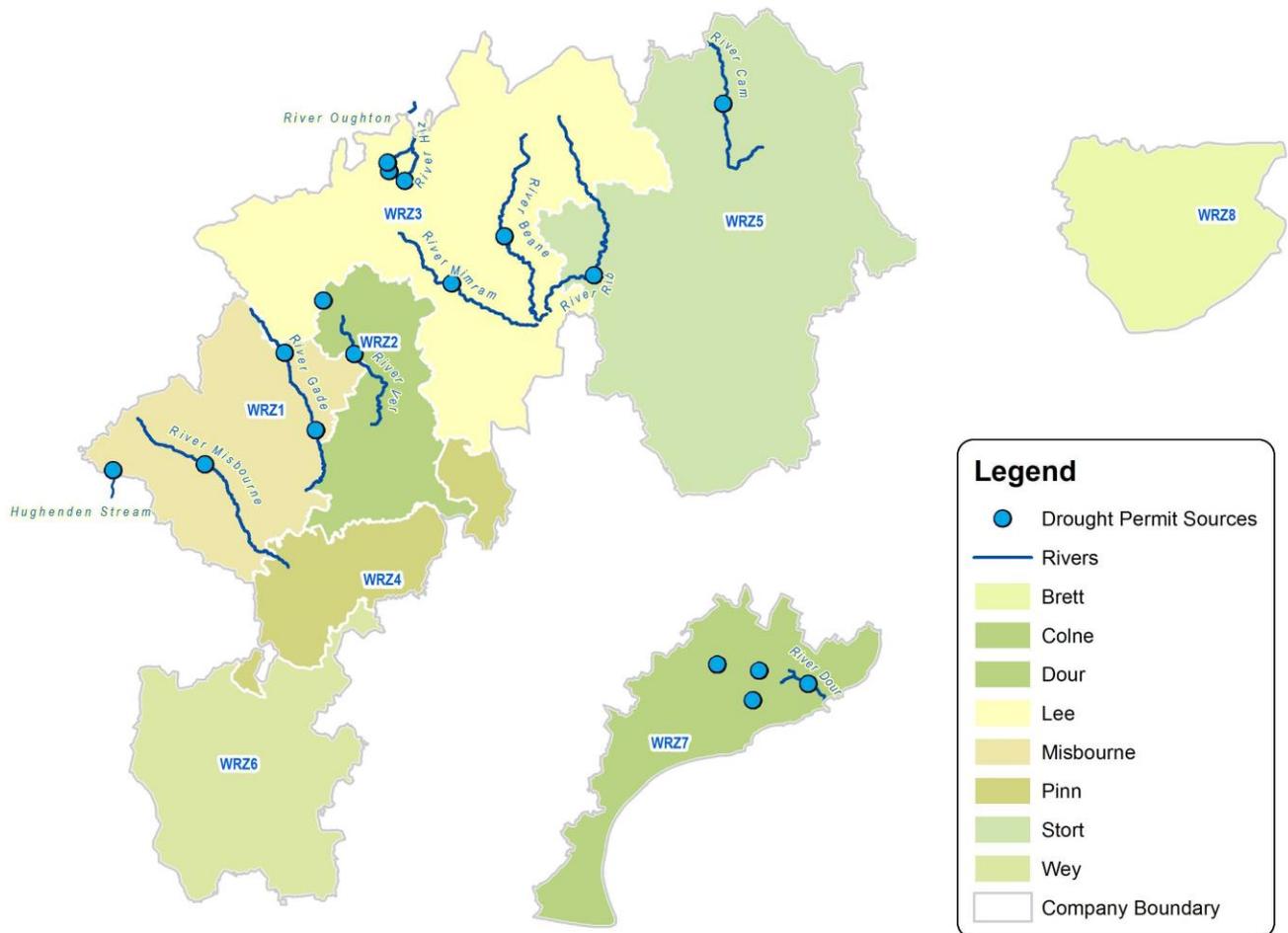
- Inside our supply area - we've developed a 'mini water grid' in our supply area so we can move water from one area to another. We would also give consideration to bringing forward planned infrastructure improvements in places where it is very critical to move water from one area to another.
- Outside our supply area – we can ask neighbouring water companies and private companies with water supply licences to provide us with extra water, where this is available.

## 1.5.4 Drought Permits

We can apply to the Environment Agency for a Drought Permit. These allow us to take, temporarily, more water from the environment than we are normally allowed to do.

We have identified 12 water sources in our Central region and four water sources in our Southeast region that combined could give us an extra 70 million litres per day.

What we would do when (order)	Groundwater abstraction from which river catchment	Extra water (million litres per day)	Drought action
1	River Rib	Up to 2.73	Relax our licence conditions to increase abstraction
2	River Gade	Up to 2.91	Relax our licence conditions to increase abstraction
3	Hughenden Stream	Up to 1.75	Bring water source back into production
4	River Gade	Up to 5	Bring water source back into production
5	River Ver	Up to 9.79	Increase water abstraction
6	River Misbourne	Up to 8	Relax our licence conditions to increase abstraction
7	Charlton Mill Pond River Hiz	Up to 0.3	Reduce the amount of water we put back into the river
8	River Oughton	Up to 1	Reduce or stop altogether the amount of water we put back into the river
9	River Cam	Up to 6	Relax our licence conditions to reduce the amount of water we put back into the river
10	River Mimram	Up to 9.09	Bring water source back into production
11	River Ver	Up to 5.82	Bring water source back into production
12	River Beane	Up to 26	Relax our licence conditions to increase abstraction



## 1.6 Protecting the environment

Protecting the environment is a fundamental part of our business, and we take our responsibilities very seriously.

We must apply to the Environment Agency for Drought Permits and the Secretary of State for Drought Orders which, if granted, could allow us to take more water from underground aquifers.

Before we do that, we carry out environmental assessments on these water sources and their catchments to see what potential impact our actions may have on the environment, and how we can mitigate these effects.

Our assessments include:

- Increasing our automated monitoring of water sources where we are abstracting more water
- Carrying out physical walkover surveys
- Measuring water flows with gauges
- Regularly testing the quality of the water
- Undertaking surveys for macroinvertebrates – these small organisms are useful indicators of the health or condition of water bodies.

