CUSTOMER FRIENDLY KEY POINTS SUMMARY.

Introduction

Portsmouth Water provides an average of 182 million litres of drinking water per day to around 305,300 customers in south east Hampshire and part of West Sussex.

During the Company's long history, particular attention has been paid to ensuring it doesn't breach its legal obligations to maintain a supply of water, despite drought periods such as those experienced during the 1890s, 1900s, 1921, 1934, 1973, 1976 and the early 1990s.

Basis of Portsmouth Water's Drought Plan

The Company's water sources are all groundwater based, with 50% of water supplied from nineteen boreholes and wells, 35% from natural springs at Havant & Bedhampton, and 15% from Gaters Mill, a river abstraction above the tidal limit of the groundwater-dependent River Itchen all in one water resource zone over an area little more than 50 km x 30km (See figure 1). However as the groundwater levels and flows decline, so does the amount of water we can take from them.

Figure 1: The Company's area of supply including all sources and reservoirs.

Portsmouth Water currently has no surface water storage reservoirs and hence its ability to maintain supplies during a drought relies upon balancing demands and using the well developed connectivity between sources and reservoirs.

A drought is defined as a significant period without rainfall. This Plan is likely to be required only during prolonged periods of low rainfall that impact on groundwater supplies. A wide range of drought scenarios has been considered so that the Plan can cope with repeats of historical levels of drought and also future droughts that may be more severe as a result of climate change.

Drought Indicators

The Company has monitored groundwater levels at Idsworth Well borehole for over seventy years. It is centrally located within the Company's area, is unaffected by abstraction and therefore provides a good indication of groundwater resources for the Company. This combined with a long record of daily rainfall measured at Havant provide key information to enable forecasts to be made of the water resources situation.

Critical Drought Scenarios

In drawing up this plan the Company has considered the national and more localised droughts in South East England. For Portsmouth Water drought events of 1973 and 1976 were the most severe.

The Environment Agency suggests that a Drought Plan should be able to cope with a range of droughts based on: a range of single season dry summers; a range of single season dry winters; and a range of multi-season droughts. The most critical period for balancing supplies with demand occurs for the Company during May to July since there is no raw water storage and this is when demand is at its highest.

Potential Drought Scenarios Considered

Single Season and Multi-season Droughts

A 'Single Season Summer Drought' is considered unlikely to affect supplies for Portsmouth Water. Experience from the dry summers of 1995, 2003 and 2006 demonstrates the Company's capability to cope with single season dry summers.

A 'Multi-Season Drought' i.e. two or more consecutive seasons of below average rainfall, has a much greater impact upon the Company's ability to balance demands with available supplies, especially if they are combined with a dry summer.

Scenario "A" is largely based upon the Company's experience of 1972 - 1974 when a dry autumn/winter of the first year was followed by some recovery in year two. **(1 in 40 probability)**

Scenario "B" is a multi-season drought based on the dry autumn/winter of 1975/76, the dry summer of 1976, which is then extended into the autumn as occurred in 1973. **(1 in 80 probability)**

Scenario "C" models the effect of applying an eighteen month period encompassing two dry summers based on conditions in 1990, and a dry winter using statistics from the winter of 1975 and 1976. **(1 in 120 probability)**

Scenario "D" is a three year drought based on 1973 but with no groundwater recovery until the end of the third winter **(1 in 200 probabilities)**

<u>Drought Management</u>

The options for managing a drought comprise:-

- Demand Management - measures which influence customer demand.
- Supply enhancement - measures taken to enhance supply availability.

The Company anticipates that it will only need to implement its Drought Plan during a multi-season drought. During the period from September to April each year, it is anticipated that there will be sufficient supply to meet demand as this is not a critical demand period. It will be principally the peak demand months of May to July in a two season drought when actions might be required.

A drought trigger profile (see figure 2) has been generated so that in any week of the year the profile can be compared against current groundwater levels at Idsworth Well and if 'breached' an early warning will be given and drought actions may need to be considered.

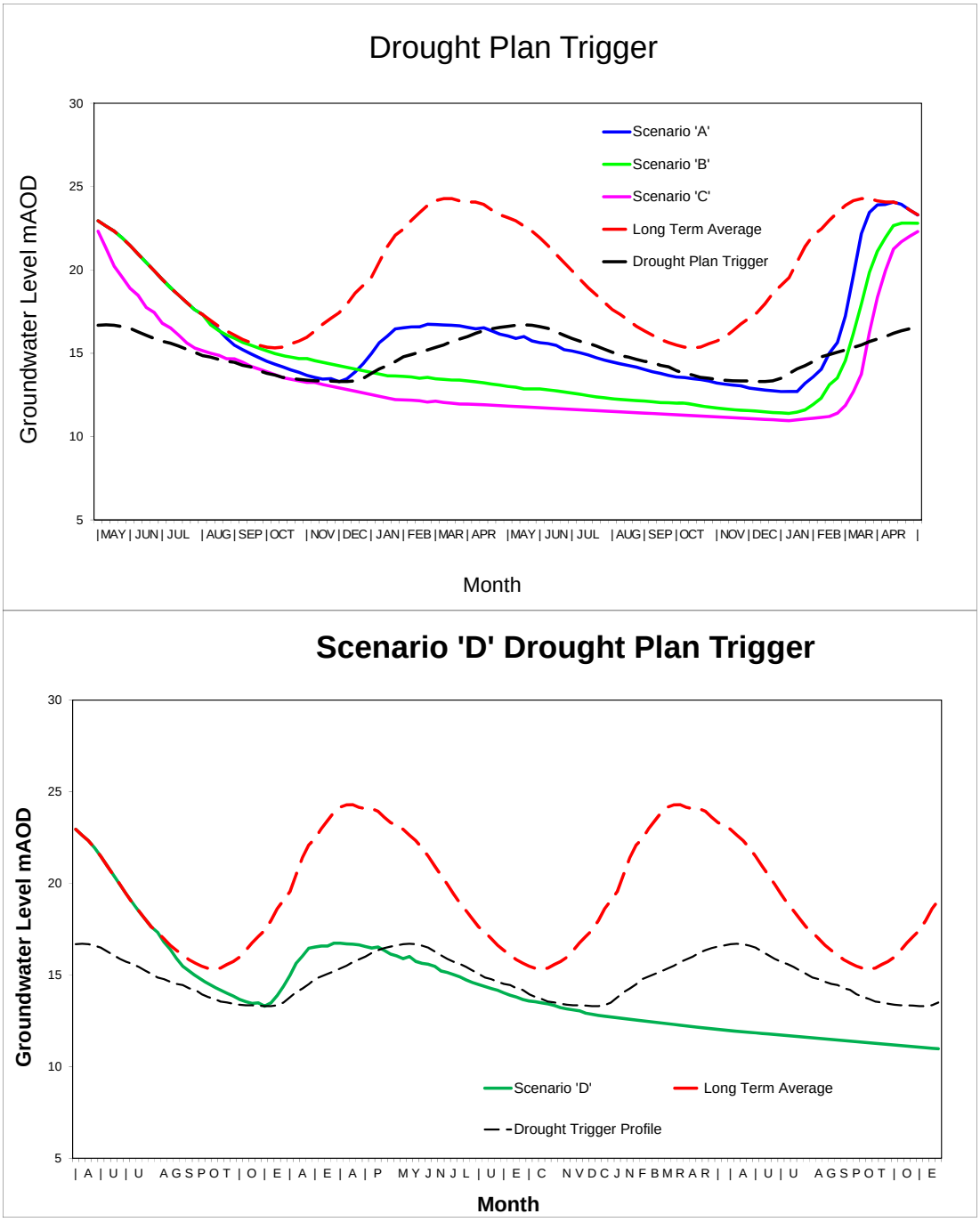

Figure 2: the Drought Trigger Profile's, containing all Scenarios, the drought plan trigger and the long term average

Drought Management Control

The Company's Drought Management Team will convene when the drought trigger profile is breached. Meetings will be held as required, usually monthly, but if necessary weekly to decide on further actions.

Potential Demand Management Actions

The Company has identified a number of key actions that might be used to hold back overall demand in order to balance supplies with demand during a drought.

- Appeals to customers for voluntary restraint in their use of water
- Enhanced leakage control by the Company including pressure reduction to reduce the level of leakage
- The imposition of temporary bans on certain activities

- The application of further restrictions under a Drought Order

Legislation allows the company to choose which activities to ban temporarily and when.

Potential Supply Enhancements

The options that have been considered in the Plan are:

- Drought Permits or Orders
- Lowering of borehole pumps to maintain source yields
- Recommissioning unused sources
- Commissioning unused Portsmouth Water boreholes
- Commissioning unused licence from private boreholes
- Increasing drought yields at existing sources

Monitoring Drought Impacts

It may not be possible to always protect the environment during extreme droughts as companies have a legal duty to supply water for public health, so a balanced view is needed. However, as the company has never had to impose drought permits or orders, it will need to seek the help of the Environment Agency, Natural England and companies which have applied for drought permits before such as Southern Water to assess the impacts on the environment.

Proposed Drought Management Actions

The severity of the drought and the drought scenario which applies will determine which drought actions will need to take place. The critical period for maintaining supplies will be the peak demand months of May to August, therefore actions may only be required for short periods.
The proposed phasing is set out below in Table 1

Table 1: An indicative timetable of timings of phases during a Scenario C type drought (Timings will vary dependant on the situation and decisions made).

Phase	Drought Measure	Approx Timing
1	Appeals for restraint and enhanced leakage control	January
2	Imposition of a Temporary Ban and application for a Drought Order	March
3	Imposition of Drought Directions and a Drought Permit for the Eastergate Group Licence	June

The suggestive set of actions demonstrates that the Company believes it can maintain supplies throughout the most severe drought scenario with only reference to one Drought Permit at the Company's Slindon source (See figure 3). There are other potential supply side options which may be needed if conditions occur that are more severe than a Scenario C Drought, this is considered highly unlikely.

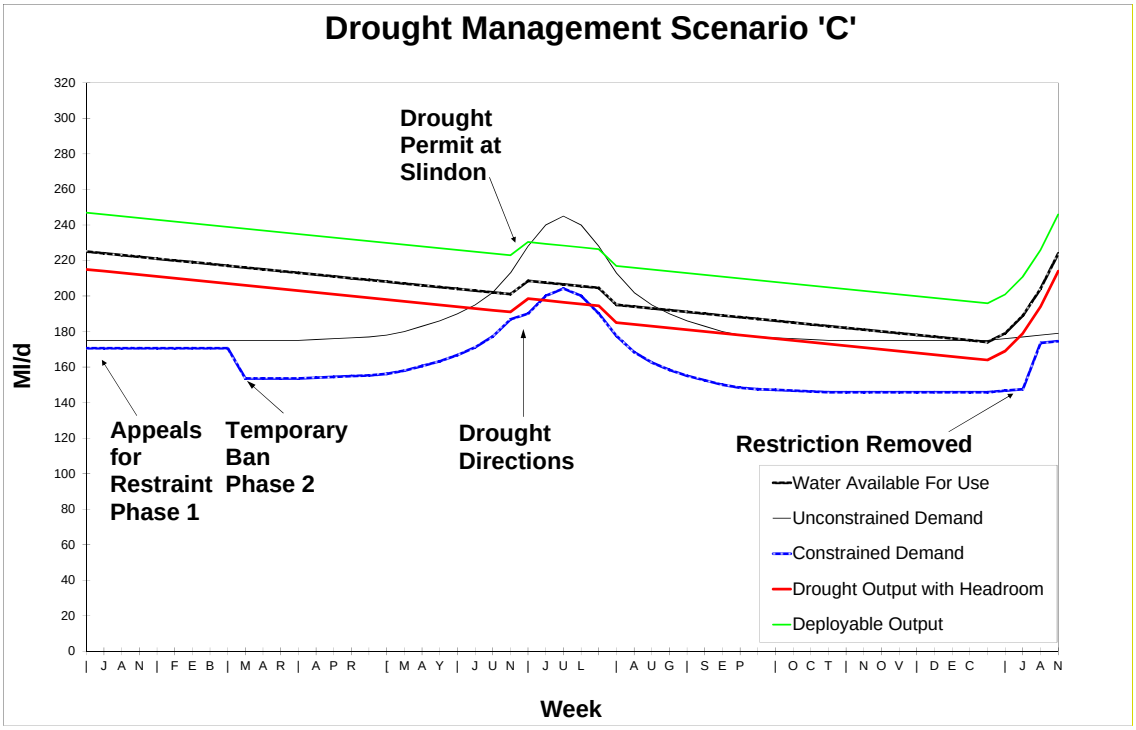

Figure 3: A graph of Drought Management Scenario 'C' including potential timeframes of when phases will be implemented.

Assessment of Drought Management Actions

The Drought Management Team will assess the impact of each of its actions before applying further measures.

Minimising Impacts upon the Environment

Droughts are extreme events and, regardless of abstraction, they will inevitably have an effect on the environment. The Environment Agency and Portsmouth Water have a responsibility to minimise the impact upon habitats and species. During a drought it may not be possible to protect every wetland or section of river from the impacts of drought; the need for monitoring and mitigation will have to be agreed with the Agency, Natural England and other conservation bodies where there is the likelihood that a Drought Order may be required.

Drought Communication Strategy

Communication will play a key part in any Drought Management Actions and the Drought Management Team will develop a communications strategy with the Environment Agency and other water companies.

Key Public Messages

The messages used and the method of delivery will be dependent upon the severity of the situation. Throughout the campaign the Company would develop messages setting out:

- The key reasons for the poor water resource situation
- The actions taken by the company to date
- The potential for future actions if the situation worsens
- The contact point for further advice
- The actions customers can undertake to help

The Drought Management Team will develop the strategy needed to manage communications using some, or all, of the following delivery methods:

- Regular Press Releases to Local Press, Radio and TV Stations
- Regular Stakeholder Briefing Sheets to the Environment Agency, Local Authorities, Consumer Council for Water, Members of Parliament and Trade Associations
- Website messages
- E-mail postscripts
- Social media
- Van-side messages
- Briefing Notes for Customer Services and Operational staff
- Official notices in the local press