Drought Plan 2022

APPENDICES

Yorkshire Water

29/04/2022

YorkshireWater

In accordance with Drought Plan guidance, this statement certifies that Yorkshire Water's Drought Plan has been reviewed by our security team. This 'public' version includes information that we have redacted or edited out in the for reasons of national security.

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Appendix 1: Drought Plan Direction 2020

The Drought Plan (England) Direction 2020

The Secretary of State makes the following Direction in exercise of the powers conferred by—

(a) section 37B(11) of the Water Industry Act 1991(**a**), as applied by section 39B(5) of that Act; and

(b) section 39B(4)(d) and (9) of that Act(**b**).

The Secretary of State has consulted the Welsh Ministers in accordance with article 5(1) of the National Assembly for Wales (Transfer of Functions) Order 1999(**c**).

Citation, commencement and application

1. (1) This Direction may be cited as the Drought Plan (England) Direction 2020 and comes into force on 6th April 2020.

(2) This Direction applies in relation to a water undertaker whose area is wholly or mainly in England.

(3) This Direction applies to any draft drought plan (and subsequent drought plan) submitted to the Secretary of State on or after 1st January 2021.

Interpretation

2. (1) In this Direction—

"the Act" means the Water Industry Act 1991;

"drought plan" means the plan which a water undertaker is required to prepare, publish and maintain under section 39B(1) of the Act;

"water undertaker" is to be construed in accordance with section 6 of the Act(**d**).

(2) A reference in this Direction to section 37B of the Act is a reference to that section as applied by section 39B(5) of the Act.

Matters to be addressed in drought plans

3. (1) A water undertaker must address the following matters in its drought plan—

(a) how the water undertaker's management structure will manage, communicate and make decisions when using its drought plan;

(b) the drought management measures that a water undertaker expects to take to maintain supply for the onset, duration and abatement of all potential droughts covered by its plan;

(c) how the sequencing of measures has been designed to limit impacts on customers and the environment;

(d) the magnitude and duration of the drought scenarios against which the drought plan has been tested to provide security of supply;

(**a**) 1991 c.56.

(b) Sections 37B and 39B were inserted into the Water Industry Act 1991 by sections 62 and 63 of the Water Act 2003 (c.37). Section 39B was amended by section 28 of the Water Act 2014 (c.21).

(c) S.I. 1999/672, amended by section 100(2) and (3) of the Water Act 2003; there are other amendments but none is relevant. Functions of the Secretary of State under sections 37B and 39B of the Water Industry Act 1991, in so far as they relate to matters other than the construction or enlargement of reservoirs, were transferred to the National Assembly for Wales in relation to any water undertaker whose area is wholly or mainly in Wales by S.I. 1999/672. Those functions were subsequently transferred to the Welsh Ministers by virtue of section 162 of, and paragraph 30 of Schedule 11 to, the Government of Wales Act 2006 (c. 32).

(d) Section 6 was amended by section 36(2) of, and paragraphs 2 and 3 of Schedule 8 to, the Water Act 2003; by paragraphs 1 and 6 of Schedule 7 to the Water Act 2014; and by paragraph 28(1) and (4)(b) of Part 5 of Schedule 23 to the Deregulation Act 2015 (c.20).

(e) the permits, orders and any other authorisations that the water undertaker expects to need in order to implement the drought management measures in its drought plan including mitigation and prevention measures;

(f) any pre-application steps agreed to ensure that the water undertaker is able to make any necessary applications in a timely manner to those bodies responsible for granting permits, orders and any other authorisations during the onset, duration and abatement of all droughts covered by its drought plan;

(g) the measures that will be used to monitor, prevent and mitigate any adverse effect on the environment resulting from the implementation of drought management measures;

(h) the compensation payments that a water undertaker expects to make as a result of the implementation of a drought management measure;

(i) how a water undertaker will review the ongoing effectiveness of its drought plan and act on its review;

(j) how the drought plan is consistent with the water undertaker's Water Resources Management Plan and any voluntary steps that will be taken to collaborate regionally on drought management measures.

(2) In this paragraph—

"compensation" means compensation within the meaning of Schedule 9 to the Water Resources Act 1991(**a**);

"drought management measure" means a measure mentioned in section 39B(4)(a) or (b) of the Act and set out in the drought plan.

Submitting draft drought plans and drought plans to the Secretary of State

4. Except where the Secretary of State otherwise directs, for the purpose of section 37B(1) of the Act, a water undertaker must send a draft of its drought plan to the Secretary of State before 1st April 2021 and in the circumstances as follows—

(a) for a first drought plan, within 6 months of the date of the appointment under section 6 or variation under section 7 of the Act(b).

(b) for a revised drought plan to which section 39B(6)(a) of the Act applies, within 6 months of the date on which the material change of circumstances occurs.

Publication of draft drought plans and drought plans

5. —(1) Except where the Secretary of State otherwise permits, a water undertaker must publish its draft drought plan in accordance with section 37B(3)(a) of the Act for consultation within 30 days beginning with the date on which the Secretary of State confirms it should do so.

(2) Except where the Secretary of State otherwise permits, a water undertaker must publish its final drought plan in accordance with section 37B(8)(a) of the Act within 30 days beginning with the date on which the Secretary of State confirms it should do so.

Responding to representations

6. Except where the Secretary of State otherwise directs, a water undertaker must produce the statement required by regulation 4 of the Drought Plan Regulations 2005(**c**) within 15 weeks after the date on which the water undertaker publishes a draft of its drought plan under section 37B(3)(a) of the Act.

For and on behalf of the Secretary of State

Sophie Broadfield
Deputy Director, Water Services
Department for Environment, Food and Rural Affairs

3rd April 2020

(a) (a) 1991 c.57.
(b) Section 7 was amended by section 40 of the Competition and Service (Utilities) Act 1992; by section 36(2) of the Water Act 2003 (c.37); and by S.I. 2000/1842, 2005/268.
(c) S.I. 2005/1905, to which there are amendments not relevant to this Direction.

Appendix 2: Drought response surfaces

Drought response surfaces have been calculated to provide an indication of the vulnerability of the Yorkshire Water system to droughts of varying magnitudes and durations. To produce the surface shown below and in Figure 2.5 of our Drought Plan, we have run our regional WRAPsim model for an "average" inflow year (1952), with inflows factored to represent a number of drought scenarios ranging from 6 to 48 months in duration, and from 25% to 95% of average inflows. In this example, all droughts end at the end of August, and the model is run for 20 years in total, with a five-year warm up period at the start and average conditions returning after the end of the specified drought duration. For each run, the number of weeks that the regional reservoir group is below the DCL has been recorded.

The inflows for the Yorkshire regional reservoir group have been analysed to determine the return period of historical inflows ending in August. To do this Peak Under Threshold (PuT) analyses have been carried out, selecting the driest 20 periods for each duration during the record starting in 1920, and applying a Generalised Pareto Distribution (GPD) to each duration. The driest 20 periods were selected to ensure that the analyses were for a genuine extreme distribution and not for all values in the period of record. The GPD provided return period inflows for all durations, and these have been plotted on Figure 2.5 of our Drought Plan.

Note that these response surfaces show the period below our Drought Control Line (DCL), as well as the period below level 4 drought restrictions, based on analyses carried out for our WRMP19.

The DRSs are shown is for droughts ending in August and November. This means that droughts of 6, 18, 30 and 42 month durations start in March, and droughts of 12, 24, 36 and 48 month durations start in September.

The DRS is constructed using design droughts for fixed flow deficits and durations. The return period analyses carried out are based on our inflow data for these design drought durations and have been carried out for each duration independently. The return period analyses are therefore reflective of the severity of droughts that have occurred in our record. For example, because we have had an extremely severe 18 month drought, this may appear to be more common than it really is because it is in our period of record and included in our analyses. This is shown by the shape of the lines

connecting events of the same return period for different durations-all lines dip significantly at the 18 month duration, because our worst 18 month drought is far lower in terms of average flows than droughts of other durations.

These analyses will be updated in our WRMP24 using stochastic time series, which should give a far more accurate estimate of the return period of extreme events, as many thousands of years of stochastic data will be analysed.

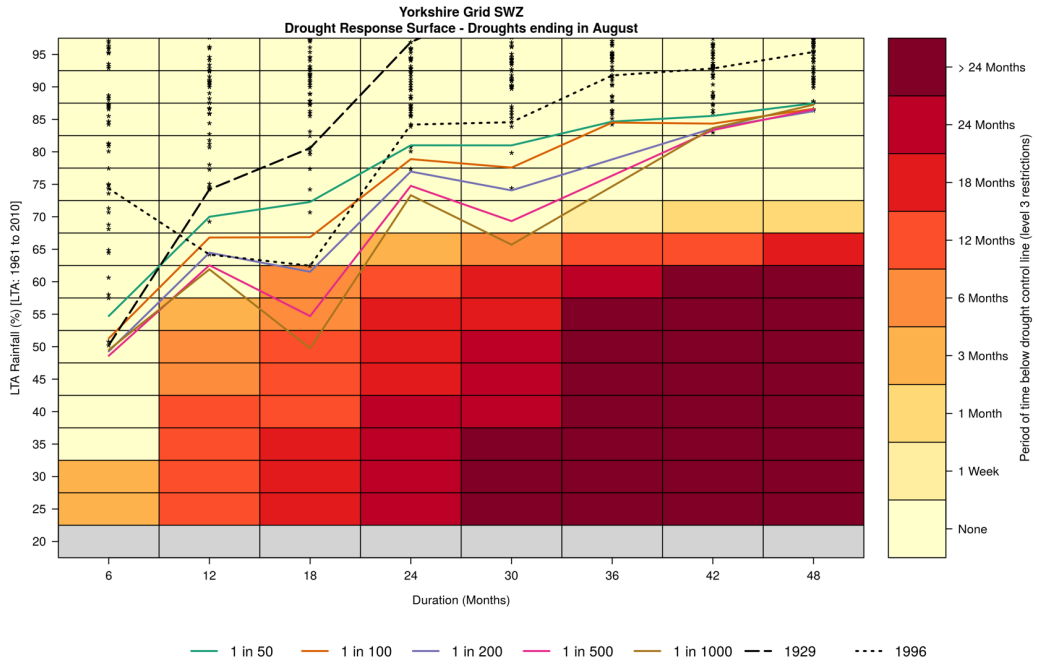


Figure 1 Drought response surface for period below drought control line for droughts ending in August

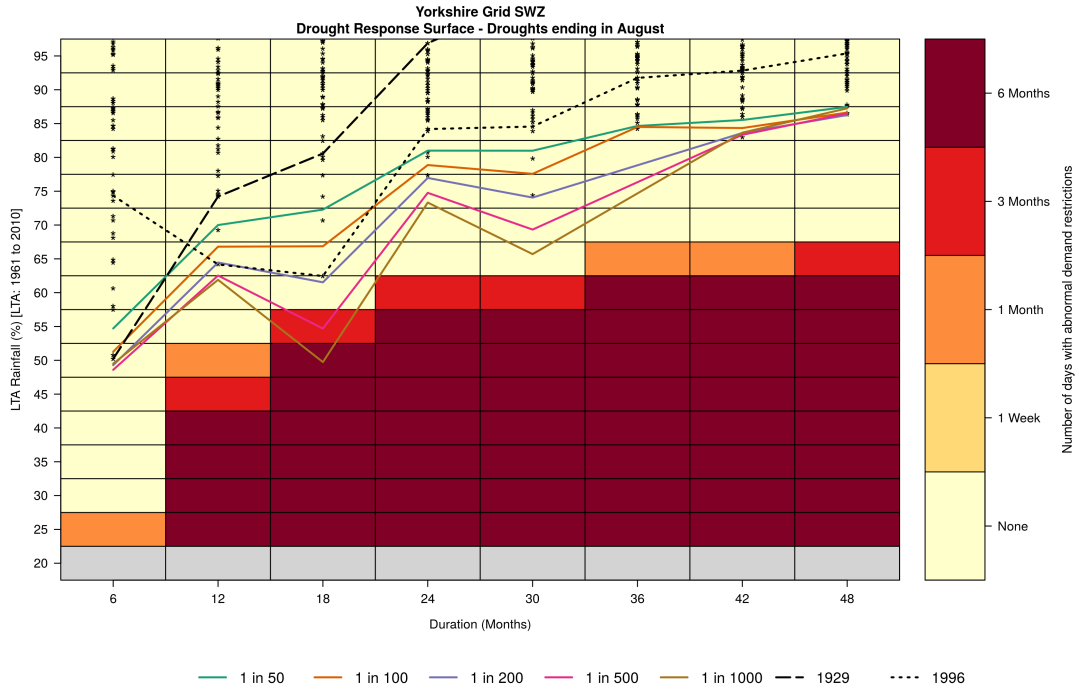


Figure 2 Drought response surface for period of level 4 restrictions for droughts ending in August

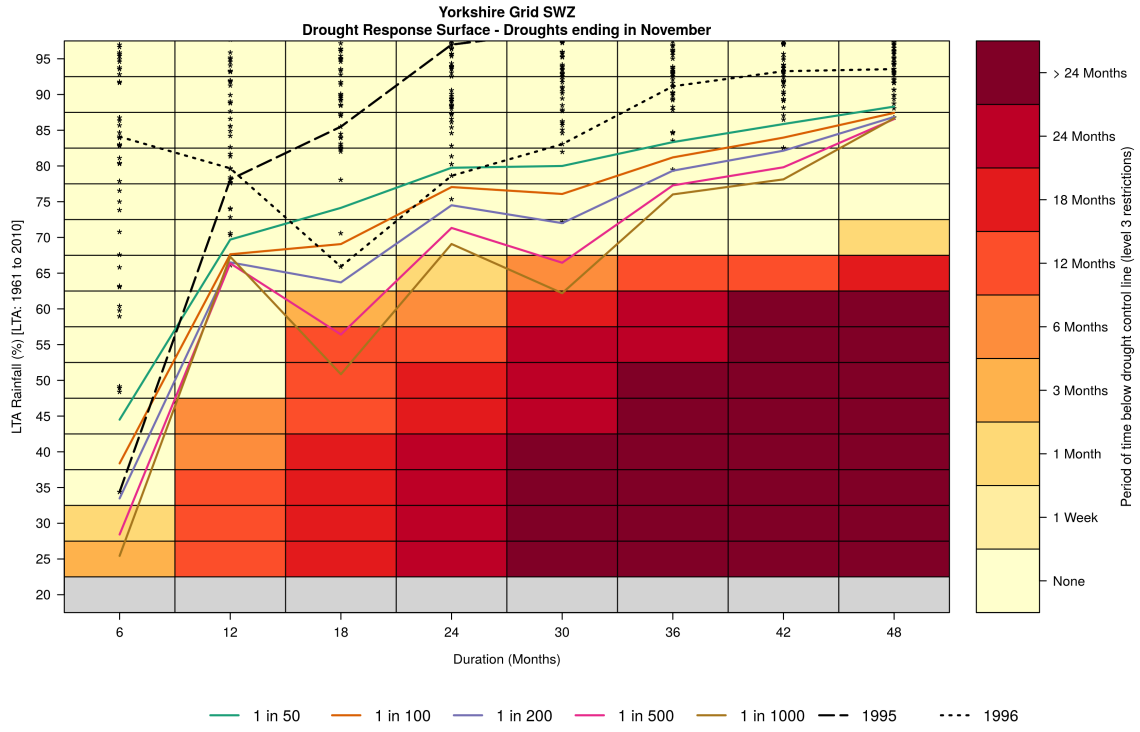


Figure 3 Drought response surface for period below drought control line for droughts ending in November

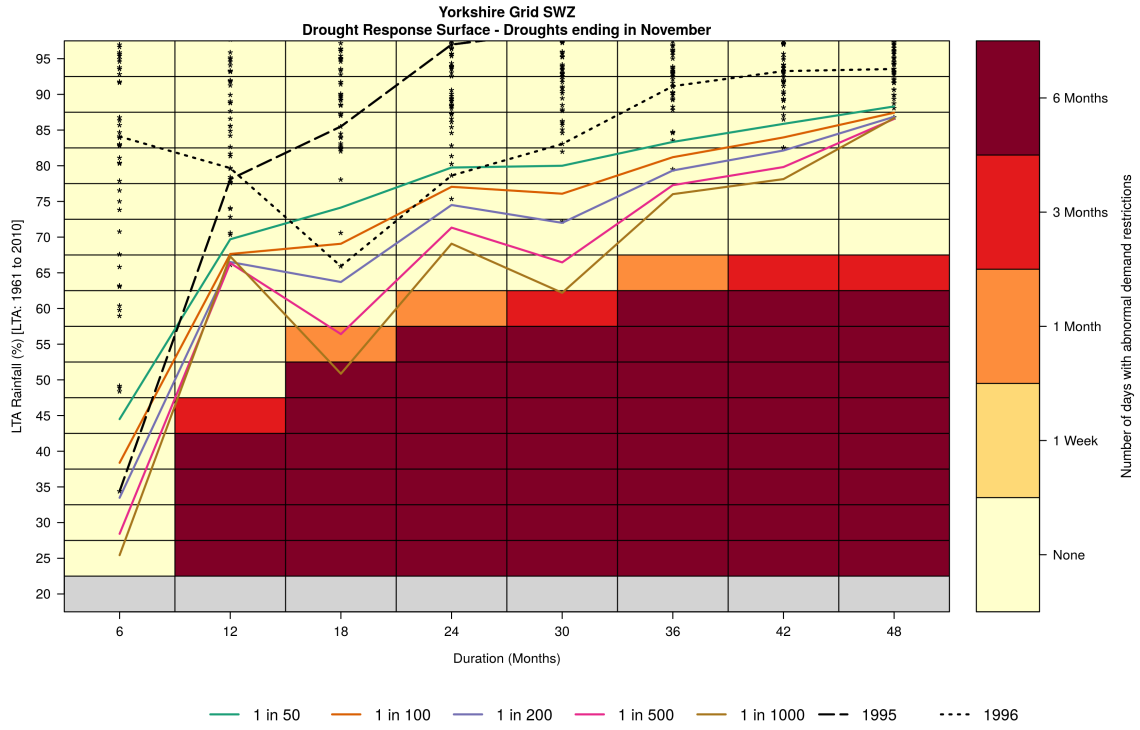


Figure 4 Drought re Response Surface for period of level 4 restrictions for droughts ending in November

Appendix 3: Drought management actions

Agile communications

The DPG2020 recognises the use of agile communications as a drought action. It advises companies including agile communications as a drought action to state the assumed savings they would expect to achieve. During a drought, companies should have plans in place if those savings are not achieved.

Implementation of a temporary use ban is likely to be a regulatory requirement before a drought permit application submitted in the summer months would be granted. Winter drought permit applications do not require a temporary use ban to be in place. The Defra *Drought permits and drought orders* guideline states that a company planning on not implementing temporary use bans as a drought measure, should show justification for this in its drought plan.

Agile communications are referenced as an example of when a company may not include temporary use bans in its plan. Our preference in a drought is to achieve savings through the use of our agile communications campaign and avoid the use of a temporary use ban. During a drought we would aim to monitor and measure the savings to gather evidence on the success of the campaign. Before applying for a drought permit we would be in regular liaison with the Environment Agency and keeping them up to date on the campaign and its impact.

If the evidence demonstrated demand savings had been achieved through the agile communications campaign, we would seek agreement from the Environment Agency that a permit application could be made without the need for a temperory use ban. However, in the absence of any firm pre-agreement from regulators that agile communications will be accepted as an alternative to temporary use bans, we are continuing to include a trigger for a temporary use ban in our drought plan. We have included this trigger as we recognise the evidence required to demonstrate savings will be difficult to collate and there is a risk savings will not be achieved. Once drought permit applications are submitted, the Environment Agency may determine the agile communications were not effective, and would then only grant a permit if a temporary use ban was in place long enough to have a measurable impact on demand. For furhter informtuion on agile communications see Section 5 of the Yorkshire Water Drought plan.

Every year we undertake activity to encourage our customers to be water efficient. During dry weather we will enhance this activity through media campaigns and our website (see section **Error! Reference source not found.** and Appendix 6 for more details). Enhanced communications can be triggered by a number of factors taking

into account the short to medium term risks. These triggers are one or more of the following:

- Demand reaches the 75 percentile based on recent historic demands
- Rainfall for the preceding weeks is less than 50% of the long term average
- Reservoir stocks fall below the Environment Agency early warning trigger line.

Leakage reduction during dry weather

At the time of writing this Drought Plan we are in the process of investing in new leakage techniques to reduce our leakage and remove the risk of a future supply demand deficit, which was identified in our WRMP 2019. This means we are already enhancing our leakage activity significantly year on year. If leakage levels do increase during a drought, we will aim to reduce to normal levels for the time of year and achieve the annual leakage target for that year.

During dry weather leakage can increase as a result of ground movement. We continually monitor our leakage levels and in the early stages of drought we would start to increase our active leakage control effort in reaction to breakouts and bursts. This would be dependent on the time of year and the actual leakage levels. All effective measures (see below) would be in place when reservoirs were 10 weeks from crossing the DCL.

The benefit of the extra leakage activity will be dependant on the leakage level at the time of the drought. Plans to significantly reduce leakage by 2025 mean that the achievable leakage reduction benefit may be reduced as we will already be driving leakage down to unprecedented low levels. The impact of drought on leakage is variable depending on temperatures and soil moisture deficit (SMD) and we may not necessarily see increased breakouts. When SMD does lead to additional leakage we will take action to reduce leakage, but this may only be effective in lowering the peaks and 'normal' levels may not be achieved

In the summer of 2018, we experienced increased break out of leaks because the hot, dry weather caused an increase in ground movement, resulting in more of our pipes bursting. In a normal year we expect ground movement to result in leaks, but the change in soil moisture in 2018 was unprecedented, and the number of burst mains increased by 60%. In any drought we will employ additional leakage reduction activities, but ground movement can mean leakage increases above normal levels during the summer months.

The potential savings from additional leakage reduction are presented in Appendix 3.2. These savings are cumulative year on year as a drought progresses. The savings are an estimate and dependent upon feasibility, available resource, current leakage levels and benefit potential.

Implemention of additional active leakage control during a drought

We recognise that delivery of additional active leakage control during a drought event, requires a robust and well supported plan. We need to be able to mobilise and co-ordinate significant resource levels, and they must be well managed and supported to perform effectively and operate safely. Our strategy will be based on supporting reactive teams to respond swiftly to any associated leakage breakouts or bursts. This can mean reducing response to non-customer impacting network issues in order to increase support to proactive leakage teams.

The planned response will be to use experienced leakage find resources to support the reactive teams so that we can deal with the immediacy of any soil moisture deficit / drought related breakout. We will then review resources required to support active leakage control and deploy resources accordingly. Leakage "find teams" will be supplemented through deployment of field technicians, distribution maintenance technicians and meter reading personnel. Fix resource will be sized to match find resource. Non-essential repair and maintenance activity will cease, and all capable resources redeployed to leakage repair activity. Regular liaison with Highways and Local Authorities will be required as we will need to complete work under emergency notices or permits.

Implementation of additional resource and overtime weekend working will supplement the approach. Teams across our Water Service Delivery business unit will flex resource accordingly to meet demand. All non-essential training, and down time will be cancelled. Enhanced analytics will ensure effective targeting of DMAs (district metered areas), reducing any delay between detection and repair. Any prevailing leakage promotion thresholds will be removed to ensure work promotion through to repair remains high.

Pressure management during a drought

In addition to enhanced 'find and fix' activity, leakage reduction can be achieved through adjusting existing pressure reducing valves (PRVs) on the distribution system. This reduces the pressure of water within pipes and consequently reduces the volume of water lost through unidentified leaks and lowers the risk of new bursts occurring. Historically, we have installed PRVs to aid leakage reduction and operated within the limits of our standards for supplying water to customers.

We currently operate to a pressure of 20m at the highest property supplied to ensure we meet Ofwat standards and minimise customer contacts. The standard pressure is 15m in the water main, but this does not always provide sufficient pressure for taller buildings, properties with cold water header tanks and joint supply properties.

Further reduction of pressure on our system increases the risk of low pressure at customers' taps and insufficeint water for water using appliances to work properly. This could lead to failure of service standards and customer complaints. Water supply to priority customers such as hospitals would also be at risk.

It is important that we maintain service standards set by Ofwat and we would only use pressure reduction in extreme circumstances. There is little scope to alter the operation of PRVs without significant impact on customers' water supply. It would also lead to redeployment of key operational staff who would otherwise be employed in leakage reduction activities. We would in a drought consider the benefits against the risks of pressure reduction, taking into account the likelihood of crossing lower control lines, weather conditions and demand peaks. We anticipate pressure reduction would only be used in extreme circumstances after level 3 actions were in place.

Appendix 3.1: Drought permit and order application process

This table describes application process for drought permits and orders, including supply-side and demand-side drought orders.

	Drought permit	**Drought order**
Pre-application	We will notify relevant authorities (such as Defra, the Environment Agency, navigation authorities and Natural England) of our intention to submit a drought permit or order application. We may need to apply for additional consents e.g. navigation authority consent, land drainage consents, an environmental permit, planning permission.	
Submission	Submit to the Environment Agency	Submit to Defra
	The application will include; • Evidence of eligibility for the application including an explanation of why we need the permit/order and evidence of exceptional shortage of rainfall • A description of how we'll use the permit/order, location map(s) and a completed environmental report • A draft of the proposed drought permit/order • Copies of any written consents relating to the application and any relevant existing abstraction licences and discharge permits • Details of demand management activity we've carried out prior to the application.	
Notice	We will send written notification of the application to; • The Environment Agency • Local authorities responsible for areas affected by the permit/order or with sources in the areas affected • The internal drainage boards with sources in the area affected • Other water companies and abstractors operating in area affected • Organisations protected by a statutory requirement (e.g. for compensation water) that the permit/order suspends or modifies • Navigational authorities responsible for any watercourse affected by the order.	

<table>
<tr><th></th><th>Drought permit</th><th>Drought order</th></tr>
<tr><td></td><td colspan="2">The notice will;
State the effects of the permit
Identify the land the application relates to (if the permit authorises the occupation and use of land)
State that all relevant maps or plans can be inspected free of charge for a period of 7 days from the date the notice is served
State that objections to the application should be made within 7 days of the notice being served.</td></tr>
<tr><td>Advertisement</td><td colspan="2">We will advertise drought permit and order applications in one or more local newspapers circulating in the area affected by the permit and in the London Gazette.
A complete copy of drought permit or order applications will be made available, free of charge, for inspection by anyone for 7 days from the date it is advertised. It will be made available at each of the following:
An appropriate place (such as a local Post Office), no more than 8km by road (or as near as possible in remote areas) from either the point of abstraction or the point of compensation discharge
The Yorkshire Water head office in Bradford and the office most local to the relevant area
The Environment Agency local office.</td></tr>
<tr><td rowspan="2">Objections</td><td>Objections to be sent to the Environment Agency;

Water Resources Permitting Support Centre Environment Agency
Quadrant 2
99 Parkway Avenue
Parkway Business Park
Sheffield
S9 4WF
psc-waterresources@environment-agency.gov.uk</td><td>Objections to be sent to Defra;

Secretary of State for the Environment, Food and Rural Affairs
Water Supply and Regulation Division
Area 2C
Ergon House
Horseferry Road
London
SW1P 2AL
water.resources@defra.gsi.gov.uk</td></tr>
<tr><td colspan="2">The Environment Agency / Defra will send Yorkshire Water copies of any objections it receives, and we will aim to resolve or mitigate the issues and reach an agreement with the objector(s).</td></tr>
</table>

	Drought permit	**Drought order**
Withdrawal	If we decide to withdraw a drought permit or order application, we will; • Notify Environment Agency/ Defra by telephone and in writing • Send out a press release on the decision to withdraw • Notify anyone who objected to the application.	
Decision	On receipt of application the Environment Agency will aim to provide a decision within 12 calendar days of the date of our last advertisement, if no objections are received or all objections are resolved and we have identified the permit application in the Yorkshire Water Drought Plan.	Defra will provide a decision on a drought permit application within 28 days, if there are no objections are complications. Defra will inform the Environment Agency and anyone who objected.
Hearing or public enquiry	If we are not able to resolve objections a hearing or public enquiry will take place. Objectors can give evidence or ask questions at a hearing or public enquiry. If we can provide a full supporting case, there's an urgent need for a drought permit or order the Secretary of State may decide that a hearing or public enquiry shouldn't go ahead. This would only be permitted in extreme cases.	
	A hearing can take place any time after the 7-day limit for lodging objections. The Environment Agency will appoint someone to run the hearing, arrange a suitable venue and notify all parties of the date, time and venue. They will usually provide 7 days' notice, though this may be shortened in more urgent cases. The Environment Agency aim to make a decision within 7 calendar days of the receipt of the hearing report, though this period can be longer or shorter.	Defra may hold a hearing or enquiry whether or not objections are made. Defra will appoint someone to hold the hearing or enquiry and Yorkshire Water will arrange a venue for the hearing or enquiry and inform interested parties of the date, time and location (hotel, town hall, Yorkshire Water office). Defra will make a decision on the drought order and inform Yorkshire Water if the application is successful or not.

<table>
<tr><th></th><th>Drought permit</th><th>Drought order</th></tr>
<tr><td>Successful applications</td><td colspan="2">We will advertise a successful application in the London Gazette and the same local newspaper where we advertised the application. The advertisement will specify where the permit can be inspected, which will be the same places where the application was made available for inspection.

Drought permits / orders are valid for up to 6 months and can be extended for a further 6 months.</td></tr>
<tr><td>Compensation</td><td colspan="2">Any of the following can submit a compensation claim for any loss or damage caused by a drought permit;
The owners of the water source associated with the drought permit
Anyone with an interest in that source (for example, fishing clubs, navigation clubs, biodiversity groups)
Anyone applying for compensation must send Yorkshire Water their claim within 6 months of the expiry of the permit
Any disputes about compensation are referred to the Lands Tribunal.</td></tr>
<tr><td rowspan="2">Extension</td><td colspan="2">We can apply to extend an existing drought permit or order for up to 6 months. We would need to apply for the extension at least 28 days before the existing permit expired. Objections can be made against an extension application and a hearing or public enquiry could take place. Drought permits/orders can’t be in force for more than 12 months but we can make a new application to renew a permit after this time.</td></tr>
<tr><td>The Environment Agency aims to provide a decision on an extension within:
12 calendar days if there’s no hearing
7 calendar days of the receipt of the hearing report if there’s a hearing.</td><td>Defra aims to provide a decision on an extension within:
7 calendar days if there are no objections to the application
28 calendar days if a hearing or inquiry takes place.</td></tr>
</table>

Appendix 3.2: Demand-side drought management actions

Phase 1: Level 1 and 2 demand management drought actions

Option Name	Voluntary water conservation	Increased leakage reduction	Temporary use ban
Action description	Encourage domestic and commercial water users to take action to reduce their water use through agile communications strategy	Implement additional active leakage control (ALC), such as. • Increase number of find resource • Increase night line monitoring • Reduce the delay between detection and repair • Reduce repair times with increase number of fix resource • Increase ALC promotion threshold	Temporary use ban as defined in *Code of Practice and Guidance for Water Companies on Water use Restrictions – 2013.*
Trigger(s) or preceding actions	Water conservation is promoted to our customers annually (green level) however, activity will be enhanced (amber level) when regional reservoir stocks above the EA early warning trigger line, demand crosses the 75%ile based on historic demand data and / or pre-ceding month's rainfall is below 50% of average. Red level messages will be used in reaction to demand peaks.	We continually review leakage data under all circumstances, to ensure we are on track to meet our annual target. When reservoirs cross the EA control line, we increase ALC dependent on time of year, current leakage level and potential yield benefit. All effective measures would be in place when reservoirs were 10 weeks from crossing the Drought Control Line.	When reservoir stocks within key areas are within 6 weeks of the Drought Control Line depending on prevailing weather conditions.
Demand Saving Reduction on peak week demand	3 to 5%. This is estimated at 50 to 75Ml/d depending on demand at the time. (combined savings of voluntary and restrictions on use would be 5% in total) This is an estimate reduction in dry weather demand which will be high during a drought period.	Up to 1% (approximately 10 Ml/d during the months in drought) Dependent upon feasibility, available resource, current leakage level and yield potential etc.	3 to 5%. This is estimated at 50 to 75Mll/d depending on demand at the time. (combined savings of voluntary and restrictions on use would be 5% in total) This is an estimate reduction in dry weather demand which will be high during a drought period.

Location Area affected or whole supply zone	Whole supply area	Whole supply area	Whole supply area
Implementation timetable	Communications will be increased within days of crossing the trigger. A RAG status will be used to enhance and reduce the campaign in reaction to demand and stock levels during the dry weather period until green status is stabilised.	1 month to achieve saving and then we will maintain activity and target further leakage savings if drought continues	Notices would be sent to newspapers at least 2 weeks ahead of publicising and will include information on a consultation. Our drought scenarios plan for notices to be published when regional reservoir stocks are forecast to be 8 weeks away from the DCL and TUBs to be implemented when stocks are 6 weeks from the DCL. However, there is no legal period of notice and depending on exact circumstances a reduced notice period may be required. Restrictions will not be implemented during winter months as they would have limited benefit.
Permissions required and constraints	No permissions required. Publicity Campaign approved by Drought Management Team	Liaison with Highways / Local Authorities to complete work under emergency notices or permits.	Evidence of exceptional shortage of rainfall.
Risks associated with option	Publicity campaigns do not provide a fixed benefit and are difficult to quantify. Not all customers respond and the appeal to conserve water may even have an adverse effect, leading to increased water use. Savings are difficult to disaggregate from variations in use due to weather patterns and behaviour e.g. weekend use is different to weekdays	Redeployment of resources could impact on other performance commitments Impact to C-Mex Savings are variable depending on conditions at the time	Restrictions do not provide a fixed benefit and are difficult to quantify. Restrictions, as with campaigns, reply heavily on customer support and willingness to save water and can have an adverse effect, leading to increased water use. Savings are difficult to disaggregate from variations in use due to weather patterns and behaviour e.g. weekend use is different to weekdays

Phase 2: Level 3 demand management drought actions

Option Name	Voluntary water conservation	Increased leakage reduction	Drought order for restrictions of non-essential use
Action description	Continuation of agile communications strategy with a stronger level of messaging to ensure customers are fully aware of the latest situation.	Continuation of Phase 1 activity	Restrictions on non-essential use as defined in *Code of Practice and Guidance for Water Companies on Water Use Restrictions – 2013.*
Trigger(s) or preceding actions	Appeals for water conservation will be in place already and enhanced to red level. Red level will be maintained when reservoir stocks cross below the Drought Control Line and updated to notify customers of the worsening situation.	Continuation of Phase 1 activity, no additional trigger.	Implemented when reservoir stocks cross below the Drought Control Line in one or more areas
Demand saving phases 1 and 2 Reduction on peak week demand	Up to 5% (combined savings of voluntary and restrictions on use would be 6% in total) This is an estimate reduction in dry weather demand which will be high during a drought period.	Up to 1% (approximately 10 Ml/d during the months in drought) Dependent upon feasibility, available resource, current leakage level and yield potential etc.	Up to 6% (combined savings of voluntary and restrictions on use would be 6% in total) This is an estimate reduction in dry weather demand which will be high during a drought period.
Location Area affected or whole supply zone	Whole supply area	Whole supply area	Whole supply area

Implementation timetable	Our agile communications strategy will mean media channels are ready in use. These will be constantly reviewed, and messaging enhanced prior to crossing the DCL to ensure customers are alerted to the increasing need to reduce demand.	Continuation from Phase 1	The implementation period is 5-6 weeks (allowing for advertisement, representation, enquiry, granting). NEUB notices would be prepared at least 2 weeks prior to advertising. An application for a NEUB would be made when regional reservoir stocks were forecast to be 4 weeks away from crossing the DCL. At this time, we would publish notices and start a public consultation. Minimum period of restrictions is typically 12 weeks.
Permissions required and constraints	No permissions required. Publicity Campaign approved by Drought Management Team	Liaison with Highways / Local Authorities to complete work under emergency notices or permits.	DEFRA will need to grant a drought order following application by the company (and public enquiry if necessary) Terms of the Drought Order to be discussed with the Environment Agency.
Risks associated with option	Same risks as Phase 1 however, potential for customers to be more responsive in response to enhanced messaging and a worsening situation.	Redeployment of resources could impact on other performance commitments Impact to C-Mex	Same risks as Phase 1, however a greater range of water use will be prohibited, and savings assumed to be higher.

Phase 3: Emergency drought orders (level 4)

Option Name	**Emergency drought order**
Action description	Prohibit / limit the use of water for any purposes considered appropriate including pressure management control to a level below service standards.
Trigger(s) Or preceding actions	Regional reservoir stocks and/ or one or more area reservoir stocks cross 20% storage level.
Demand saving phases 1 to 3	0 – 10% Entirely dependent upon extent if drought, demand at time of implementing and practical implementation.
Location Area affected or whole supply zone	Will be applied to affected areas taking into account localities of priority customers such as hospitals. This will limit the use of restrictions.
Implementation timetable	Implemented when reservoir stocks for corresponding resource group enter emergency storage. The time to implement this measure will depend on the extent and success of other drought orders / permits and emergency drought orders. The preparation time will be approximately 4-6 weeks. Implementation time will be approximately 2-4 weeks
Permissions required and constraints	Permission by DEFRA via an emergency drought order following successful application by the company (and public inquiry if necessary)
Risks associated with option	Estimates are based on those provided in 1995. Costs and true impacts are unknown. Any emergency drought order actions to reduce demand are a risk to public health, society and the economy. An emergency drought order permits the use on rota cuts, water tanks and standpipe. However, these measures are impracticable to deliver and extreme pressure management is considered more likely. The impact on service to customers would be below guaranteed standards. Reversing the actions once supplies recovered could take several months and could be damaging to the network which would create an additional risk to security of supply.

Water saving through demand side drought management actions

Estimates for water use restrictions are based on observed water saving during the drought of 1995/96 and estimated savings presented in the Code of Practice for Water Companies on Water Use Restrictions - 2013 (UKWIR, 2013). Potential demand reduction through voluntary conservation has been based on an assumption an enhanced and agile communication campaign, upscaled as a drought develops, has potential to achieve the same reduction as a temporary use ban. We have not assumed the agile communications and temporary use ban savings are accumulative as both measures target the same behaviour.

Each drought is associated with a unique pattern of events and the effect of future water efficiency campaigns and restrictions will not necessarily be the same in all droughts. As observed in Modelling the Impact of Restrictions on Demand During Drought (UKWIR, 2006/07), consumers' response to drought may vary depending on the frequency and severity of future droughts and restrictions on demand.

The report also noted that restrictions are generally part of a sequence of events which combine to influence demand. Therefore, any decrease in demand cannot necessarily be attributed to the restriction itself. The observed impacts of a restriction are a function of all preceding activity such as earlier restrictions imposed, neighbouring water company restrictions, media coverage, awareness campaigns and timing of the implementation of restrictions.

Voluntary water conservation

We currently promote water efficiency to domestic customers regardless of reservoir levels. This includes provision of water saving devices and encouraging behavioural change through our website, billing and social media. In a period of prolonged dry weather this activity will be increased through enhanced communication to customers through use of local media. We will also engage with commercial water users to promote and advise on water efficiency through the Market Operations team in consultation with retailers.

Water saving may be greater because of external influences such as national media and neighbouring water companies' campaigns and activities. The UKWIR project Modelling the Impact of Restrictions on Demand During Drought (2006/07) looked at the effect of media coverage and neighbouring water company restrictions on resource zones without restrictions. Results for the three resource zones analysed suggested an impact on demand of -5 to -6% for national media

and -1.4 to -2.6% reduction in demand resulting from neighbouring company level 2 restrictions.

Increased leakage reduction

Plans to significantly reduce leakage by 2025 mean that drought leakage reduction activity is to react to any leakage breakouts during dry weather. Leakage will continue to reduce year on year to meet an increasing lower annual leakage target. In addition to enhanced 'find and fix' activity, leakage reduction could be achieved through operation of existing pressure reducing valves (PRVs) on the distribution system. However, reduction of pressure on our system increases the risk of low pressure at customers' taps and increased customer complaints and this activity would only be used in extreme drought situations.

Temporary use bans

We estimate water savings up to 70Ml/d as a result of a temporary use ban. This is a 6% reduction during dry weather demand of 1350Ml/d. The majority of this saving (60Ml/d) is due to reduced hosepipe use for garden watering and washing private vehicles. Savings of this magnitude can only be achieved during periods when demand is high as a result of increased use during hot, dry weather. This is based on observed water savings when a hosepipe ban was imposed in the drought of 1995/96.

We assume small additional water savings resulting from a reduction in water use for washing windows (using a water fed pole), watering plants (in an outdoor pot) and cleaning patios and paths. The total water saving from prohibiting this activity is estimated to be less than 0.75% of average dry year demand (less than 10Ml/d maximum estimated saving).

Water saving as a result of all other activity covered by a temporary use ban; such as filling or maintaining a domestic paddling pool, domestic pond or ornamental fountain is estimated to be negligible.

The estimated savings are supported by the results of the report Modelling the Impact of Restrictions on Demand During Drought (UKWIR, 2006-07). This report quantifies the impact of restrictions during the drought on 2004-06 in South East England through multiple linear regression modelling. Average reduction in demand (DI minus leakage) during the summer were found to be in the region of 4.5% for unattended hosepipe and sprinkler bans and 7.5% for full hosepipe bans.

Similarly, the report Quantifying the impact of water company drought measures on water demand (Environment Agency, 2013) found demand decreased by a

maximum of 6.5% prior to a temporary use ban, increasing to a maximum 10% reduction when a ban was imposed during the drought in 2012.

Restriction of non-essential use (Drought Order restrictions)

Estimated potential water saving due to restrictions of non-essential use are based where available on estimated savings and assumptions presented in the Code of Practice for Water Companies on Water Use Restrictions - 2013 (UKWIR, 2013). The restricted activities assumed to give the largest savings are operating a mechanical vehicle washer, cleaning a window of a non-domestic property and watering outdoor plants on commercial properties. Savings through restricting water use for activities such as cleaning industrial plant, suppressing dust and cleaning any vehicle, boat, aircraft or railway rolling stock are considered to be comparatively insignificant.

We estimate maximum water savings in the region of 10Ml/d as a result of restriction of non-essential use. This is a 1% reduction in dry weather demand of 1350Ml/d.

Preparing for restrictions on use

The above tables include implementation times for imposing restrictions on use including temporary use bans and non-essential use bans. These represent the time for finalising formal notices, publishing notices and imposing the restrictions. Draft notices for restrictions have been prepared using templated provided in the *Managing Through Drought: Code of Practice and Guidance for Water Companies on Water use Restrictions* (UKWIR 2013).

During the period leading up to the advertising of restrictions the notices will be reviewed in the context of the current situation and the need for restrictions discussed with key stakeholders including inset appointees and retailers operating in our area, the NFU and consumer groups such as CCW. Temporary use bans would be considered at the same time as preparing drought permit applications for supply-side actions (14 weeks away from crossing the DCL or 8 weeks before a temporary use ban). Non-essential use bans would be considered when regional reservoir stocks were forecast to be 10 weeks away from crossing the DCL.

The company incident management team would be at bronze at 14 weeks from the DCL and escalated to silver when 10 weeks from the DCL. If stock predictions were showing a potential need for restrictions the exact requirements would be discussed as part of the incident management team meetings with specific actions raised, assigned and delivered. This would include finalising the notices, arranging newspaper and other media coverage, liaising with key stakeholders, producing additional information such as frequently asked questions and preparing Yorkshire

Water Customer Service Teams for dealing with the consultation and customer enquiries. Scripts would be prepared for the Customer Service Teams to follow and they would be provided with contact details of key individuals on the drought incident management team. Details on how to make representations on the restrictions will be included in the legal notices which will be advertised as a minimum in two newspapers and on our website. We will provide a dedicated email address for public representations.

Appendix 3.3: Water use restrictions in a drought

Temporary use ban categories and exceptions. Source: UKWIR Managing through drought - code of practice and guidance on water use restrictions – 2013.

TUB Category	Statutory Exception	Discretionary Universal Exception (granted by all water companies)	Suggested Discretionary Concessional Exception (granted by individual water companies)	Note
1) Watering a garden using a hosepipe	Using a hosepipe to water a garden for health or safety reasons. NB In this category, the definition of "a garden" includes "an area of grass used for sport or recreation". Therefore it should be noted that watering areas of grass, which are used for sport or recreation, is covered by a Statutory Exception for health & safety only in relation to the active strip/playing area, not the entire ground.	• To Blue Badge holders on the grounds of disability • Use of an approved drip or trickle irrigation system fitted with a pressure reducing valve (PRV) and timer	• To customers on the company's Vulnerable Customers List who have mobility issues but are not in possession of a Blue Badge • To water newly bought plants for first 14 days • To water food crops at domestic premises or private allotments • To water newly laid turf for first 28 days	The whole of the sports pitch can still be watered using other methods. Some companies may wish to grant a Discretionary Concessional Exception to allow the use of a hosepipe to water other grassed areas used for sport where there is no health and safety risk.
2) Cleaning a private motor-vehicle using a hosepipe	A "private motor-vehicle" does not include (1) a public service vehicle, as defined in section 1 of the Public Passenger Vehicles Act 1981(c), and (2) a goods vehicle, as defined in section 192 of the Road Traffic Act 1988(d)	• To Blue Badge holders on the grounds of disability • Use of a hosepipe in the course of a business to clean private motor vehicles where this is done as a service to customers	• To customers on the company's Vulnerable Customers List who have mobility issues but are not in possession of a Blue Badge • Use of specific low water use apparatus, such as pressure washers	Taxis and minicabs are not considered to be public service vehicles and so are subject to bans[1].
3) Watering plants on domestic or other non-commercial premises using a hosepipe	Does not include watering plants that are (1) grown or kept for sale or commercial use, or (2) that are part of a National Plant Collection or temporary garden or flower display.	• To Blue Badge holders on the grounds of disability • Use of an approved drip or trickle irrigation system fitted with a PRV and timer	• To customers on the company's Vulnerable Customers List who have mobility issues but are not in possession of a Blue Badge • To water newly-bought plants for first 14 days • To water newly laid turf for first 28 days	The water restriction does not apply to the watering of plants that are grown or kept for sale or commercial use by horticultural businesses e.g. plant nurseries etc.
4) Cleaning a private leisure boat using a hosepipe	(1) cleaning any area of a private leisure boat which, except for doors or windows, is enclosed by a roof and walls. (2) Using a hosepipe to clean a private leisure boat for health or safety reasons	• Commercial cleaning • Vessels of primary residence • Cases where fouling is causing increased fuel consumption • Engines designed to be cleaned with a hosepipe.	• To remove graffiti • To prevent or control the spread of non-native and/or invasive species	

[1] The position that taxis are not classed as public service vehicles is as follows. The current legislation (Section 76(2)(b) of the Water Industry Act 1991) allows TUB restrictions to be imposed on "*private motor vehicles*". The definition of a private motor vehicle in the Water Use (Temporary Bans) Order 2010 (Regulation 5) excludes public service vehicles as defined by Section 1 of the Public Passenger Vehicles Act 1981. This definition includes vehicles not adapted to carry more than eight passengers and "*used for carrying passengers for hire or reward at separate fares in the course of a business of carrying passengers*." Each element of this definition must be satisfied. In other words, it must be a vehicle which: is not adapted to carry more than eight passengers; ... used for carrying passengers for hire or reward; ... at separate fares; ... in the course of a business. In the case of taxis, elements 1,2 and 4 are satisfied, but (usually) not 3. A taxi, unlike a bus, does not (usually) carry passengers at separate fares. There is a fare for the journey undertaken rather than separate fares for each passenger in the vehicle. Further, in the DfT document (dated November 2011) Public Service Vehicle Operator Licensing Guide for Operators, there is a statement that "*separate fares mean an individual payment by each passenger to the driver, conductor or agent of the operator for the journey undertaken*" This is not how taxis operate, so they therefore fall within the definition of private motor vehicle in the WIA. Taxis will be licensed by the local authority, but is clear from the DfT guidance that if they don't carry passengers at separate fares, they do not require a PSV licence, because they are not PSVs as defined.

Temporary use ban categories and exceptions (cont.)

TUB Category	Statutory Exception	Discretionary Universal Exception (granted by all water companies)	Suggested Discretionary Concessional Exception (granted by individual water companies)	Note
5) Filling or maintaining a domestic swimming or paddling pool	(1) filling or maintaining a pool where necessary in the course of its construction (2) filling or maintaining a pool using a hand-held container which is filled with water drawn directly from a tap (3) filling or maintaining a pool that is designed, constructed or adapted for use in the course of a programme of medical treatment (4) filling or maintaining a pool that is used for the purpose of decontaminating animals from infections or disease (5) filling or maintaining a pool used in the course of a programme of veterinary treatment (6) filling or maintaining a pool in which fish or other aquatic animals are being reared or kept in captivity	None	• Pools with covers used to minimise evaporative losses when not in use • Pools with water conservation and/or recycling systems approved by the water company • Paddling pools at early stages of a drought • Pools that are subject to significant repair and renovation • Filling new pools	• Hot tubs are not classed as pools • Pools with religious significance are not domestic pools • Pools used by school pupils for swimming lessons should be excluded: they are covered by Drought Order legislation
6) Drawing water, using a hosepipe, for domestic recreational use	None	None	• Pools with covers used to minimise evaporative losses when not in use • Pools with water conservation and/or recycling systems approved by the water company	
7) Filling or maintaining a domestic pond using a hosepipe	Filling or maintaining a domestic pond in which fish or other aquatic animals are being reared or kept in captivity	• Blue Badge holders on the grounds of disability	• To customers on the company's Vulnerable Customers List who have mobility issues but are not in possession of a Blue Badge	• Filling and topping up of a pond by fixed and buried pipes is not restricted
8) Filling or maintaining an ornamental fountain	Filling or maintaining an ornamental fountain which is in or near a fish-pond and whose purpose is to supply sufficient oxygen to the water in the pond in order to keep the fish healthy	None	• To operate water features with religious significance	

Temporary use ban categories and exceptions (cont.)

TUB Category	Statutory Exception	Discretionary Universal Exception (granted by all water companies)	Suggested Discretionary Concessional Exception (granted by individual water companies)	Note
9) Cleaning walls, or windows, of domestic premises using a hosepipe	Using a hosepipe to clean the walls or windows of domestic premises for health or safety reasons	• To Blue Badge holders on the grounds of disability • Commercial cleaning	• To customers on the company's Vulnerable Customers List who have mobility issues but are not in possession of a Blue Badge • For the removal of graffiti • Where very low water use technologies are employed and approved by the water company	• The use of water-fed poles for window cleaning at height is permitted under the H&S statutory exception • The restrictions do not apply where the cleaning apparatus is not connected to mains supply
10) Cleaning paths or patios using a hosepipe	Using a hosepipe to clean paths or patios for health or safety reasons	• To Blue Badge holders on the grounds of disability • Commercial cleaning	• To customers on the company's Vulnerable Customers List who have mobility issues but are not in possession of a Blue Badge • For the removal of graffiti • Where very low water use technologies are employed and approved by the water company	
11) Cleaning other artificial outdoor surfaces using a hosepipe	Using a hosepipe to clean an artificial outdoor surface for health or safety reasons	• To Blue Badge holders on the grounds of disability • Commercial cleaning	• To customers on the company's Vulnerable Customers List who have mobility issues but are not in possession of a Blue Badge • For the removal of graffiti • Where very low water use technologies are employed and approved by the water company	• The use of water-fed poles for window cleaning at height is permitted under the H&S statutory exception • The restrictions do not apply where the cleaning apparatus is not connected to mains supply

Non-essential use drought order categories and exceptions. Source: UKWIR Managing through drought - code of practice and guidance on water use restrictions – 2013.

Drought Order Purpose of Use	Statutory Exception	Discretionary Universal Exception (granted by all water companies)	Suggested Discretionary Concessional Exception (granted by individual water companies)
Purpose 1: watering outdoor plants on commercial premises	The purpose specified does not include watering plants that are: (a) grown or kept for sale or commercial use; or (b) part of a National Plant Collection or temporary garden or flower display	None	• Use of an approved drip or trickle irrigation system fitted with a PRV and timer • Watering newly-bought plants
Purpose 2: filling or maintaining a non-domestic swimming or paddling pool	The purpose does not include: (a) filling or maintaining a pool that is open to the public; (b) filling or maintaining a pool where necessary in the course of its construction; (c) filling or maintaining a pool using a hand-held container which is filled with water drawn directly from a tap; (d) filling or maintaining a pool that is designed, constructed or adapted for use in the course of a programme of medical treatment; (e) filling or maintaining a pool that is used for the purpose of decontaminating animals from infections or disease; (f) filling or maintaining a pool that is used in the course of a programme of veterinary treatment; (g) filling or maintaining a pool in which fish or other aquatic animals are being reared or kept in captivity; (h) filling or maintaining a pool that is for use by pupils of a school for school swimming lessons. Note that a pool is not open to the public if it may only be used by paying members of an affiliated club or organisation.	None	• Swimming pools serving industrial training if considered justified • Swimming pools with covers; • Pools with religious significance; • Pools fitted with approved water conservation or recycling systems • Pools that are subject to significant repair and renovation
Purpose 3: filling or maintaining a pond	The purpose does not include: (a) filling or maintaining a pond in which fish or other aquatic animals are being reared or kept in captivity (b) filling or maintaining a pond using a hand-held container which is filled with water drawn directly from a tap	To Blue Badge holders on the grounds of disability	To customers on the company's Vulnerable Customers List who have mobility issues but are not in possession of a Blue Badge
Purpose 4: operating a mechanical vehicle-washer	Operating a mechanical vehicle-washer for health or safety reasons	None	• Washers which recycle water and thus use less than 23 litres per wash • On biosecurity grounds

Non-essential use drought order categories and exceptions (cont.)

Drought Order Purpose of Use	Statutory Exception	Discretionary Universal Exception (granted by all water companies)	Suggested Discretionary Concessional Exception (granted by individual water companies)
Purpose 5: cleaning any vehicle, boat, aircraft or railway rolling stock	Cleaning any vehicle, boat, aircraft or railway rolling stock for health or safety reasons	None	• Low water use technologies • Small businesses whose sole operations are cleaning of vehicles using hosepipes • Those using vessels as a primary residence • Cases where fouling of hulls causes increased fuel consumption • Removal of graffiti • To prevent or control the spread of non-native and/or invasive species
Purpose 6: cleaning non-domestic premises	Cleaning of any exterior part of a non-domestic building or a non-domestic wall for health or safety reasons	None	• Small businesses whose sole operations are cleaning of non-domestic buildings using hosepipes; • Low water use technologies • Removal of graffiti
Purpose 7: cleaning a window of a non-domestic building	Cleaning a window of a non-domestic building using a hosepipe for health or safety reasons	None	• Small businesses whose sole operations are cleaning of non-domestic buildings using hosepipes
Purpose 8: cleaning industrial plant	Cleaning industrial plant using a hosepipe for health or safety reasons	None	• For the removal of graffiti
Purpose 9: suppressing dust	Suppressing dust using a hosepipe other for health or safety reasons	None	None
Purpose 10: operating cisterns (in unoccupied buildings)	None	None	None

Appendix 3.4: Temporary use ban consultations

Drought Plan 2013 customer research on new restrictions introduced by the Flood and Water Management Act 2010

Background

For our Drought Plan 2013, we commissioned research to collate the views of our customers on the new restrictions introduced by the Flood and Water Management Act 2010, and detailed in the Water Use (Temporary Bans) Order 2010. This research asked customers how they feel the temporary bans on water use restrictions should be implemented and whether our approach to implementing the demand restrictions is agreeable.

This consultation was on the restriction of use under temporary use bans only and did not include restrictions of non- essential use covered by the Drought Direction 2011.

We consulted with 400 domestic and 50 commercial customers by structured telephone interviews. We also consulted with 12 key stakeholders by telephone interview.

Objectives

The main objectives of the research were to explore attitudes towards:

- The timing of the introduction of the restrictions
- Whether the ordering of the restrictions (priority) is right
- What relative value customers place on the use of a hosepipe for each of the activities
- What exemptions should be granted
- How customers would like to make representations for additional exemptions
- How customers prefer to receive communication on topics of drought and demand restrictions.

Summary of findings

- None of the uses of water listed under the Water Use (Temporary Bans) Order 2010 are of great importance to domestic or business customers

- Most feel that banning watering a garden/plants with a hosepipe or cleaning a private motor vehicle with a hosepipe would have the greatest impact on conserving the region's water.
- The top four uses both domestic and business customers would want to see a ban imposed for are:
    - Cleaning a private leisure boat using a hosepipe
    - Cleaning a private motor vehicle using a hosepipe
    - Filling or maintaining a domestic swimming pool or paddling pool using a hosepipe
    - Watering the garden with a hosepipe
- Domestic and business customers are generally happy to have 1 week's notice or less that a ban is going to be implemented.
- Businesses (depending on their use of water) may need longer with those in the leisure sector or food production amongst those requesting more time.
- It is unlikely that many domestic customers, businesses or stakeholders would object to any restrictions.
- Domestic customers generally feel that exemptions shouldn't be granted.
- Half of the businesses surveyed felt exemptions should be granted, in particular to those customers reliant on water to survive and emergency services.
- Some stakeholders share this opinion with only a minority believing any domestic customers should be exempt.
- Stakeholders would like to be informed well advance of customers with many preferring on-going dialogues with Yorkshire Water as a means of communication.
- Generally, less lead in time is needed to inform customers that the ban is ending.

Future options for managing customer demand for water White paper prepared for Yorkshire Water by London Economics 2018

Consumer reactions and attitudes towards temporary use bans (TUBs)

The London Economics paper, on behalf of Yorkshire Water presents evidence on consumers' reactions and attitudes towards TUBs. The evidence on consumer reaction is mostly sourced from qualitative research (e.g. surveys, interviews, focus groups) commissioned by water companies, industry bodies and academic research.

The main reasons for consumer acceptability of these bans involve the perceived seriousness of the situation and how well they believe their water provider is managing water supply (e.g. leakages). If low water supply can be attributed to factors such as, severe drought rather than mismanagement, they are more likely to be accepting of a restriction.

Evidence from UK water sector

According to a survey conducted by UKWIR (*Understanding the Impacts of Drought Restrictions*, UKWIR 2013), 68% and 75% of domestic and non-domestic respondents respectively, were aware there was a hosepipe ban in their local area. Less than 1% of domestic respondents could correctly identify all the restricted activities (from a list of 17). These responses are evidence that those affected by the hosepipe ban failed to fully understand what the ban entailed and it seems likely that the impact of this TUB was limited by this lack of understanding.

In 2018 Yorkshire Water also examined consumer reaction by commissioning research with the aim of looking into the acceptability of hosepipe bans to customers[1]. Quotes from the research emphasise that the acceptability of a hosepipe ban is linked to a customer's perception of the provider's current water management. If the water company is perceived as responsible and the reason for implementing a ban is a result of a serious shortage customers are more likely to accept a ban.

[1] This survey was completed by 775 respondents; These respondents were selected to ensure representativeness based on gender, age, SEG & location; the data was weighted on unmetered and metered status for a 50/50 split. Focus groups were also conducted. These focus groups had 8-9 participants each, these participants had a variety of attitudes towards the environment (and were also a mix of ethnicities, ages and genders).

Further research commissioned by Yorkshire Water[2] also attempted to gather consumer reaction and attitudes towards hosepipe bans. It emerged that for consumers the main areas of concern are garden watering, car washing and social relationships:

- "The driveway is a gateway to my house; people view that, and they view you as a presentable person."
- "My son likes to water the plants with me and help his dad wash his bike; it's lovely to do things together."
- "The lawn being burned away is literally your money being burned away."

This report presents over thirty consumer quotes representing reaction to TUBs; these quotes mostly fall into the category of concerned homeowners who are worried that their garden, cars and social relationships will be damaged or diminished by a ban. However, these problems could be solved with handheld watering (which would not be banned under a hosepipe ban), implying that these consumers do not fully understand the ban, which is consistent with previous findings.

During the interviews, consumers were consulted on their views before and after being given information on 'water use and the impact of hosepipe bans.' As seen in Table 1, providing consumers with evidence on general water management almost always weakened support for TUBs. The two main concerns found in these interviews were that bans did not appear to save great amounts of water, and the amount of leakage.

View prior to receiving info	View after having considered provided info	Associated Quote
Pro-ban	Pro-ban	"I'd still support a ban despite what we've heard, because every little helps"
Pro-ban	'On the fence'	"I just assumed hosepipes accounted for so much more water use"
Pro ban	Anti-ban	"When you see what a ban achieves, it just feels ridiculous"
'On the fence'	Anti-ban	"Even though I use my hosepipe a lot, the info today doesn't suggest me not using would make a great deal of difference"

[2] This research took the form of 6 qualitative workshops, designed to spark debate, comprising of 9 participants: 3 whom were supporters of hosepipe bans, 3 participants whom were against hosepipe bans and 3 participants whom were 'on the fence'. In addition to these workshops, 5 'at home in-depth interviews' with selected customers were also conducted.

Anti-ban	Anti-ban	"I'm even more anti than I was before given how much water they lose a day"

Source: Yorkshire Water (2018), Reducing Demand for Water Research

Table 3.1 The effect that water usage statistics had on household views regarding TUBs

Some non-domestic consumer reactions can be found in a code of practice and guidelines on water use restrictions for water companies, published by UKWIR (2014). This included interviews with non- domestic public and private associations. Their responses suggest that water use restrictions would have a range of negative effects on their activities and businesses, including both financial and social consequences such as job losses and safety concerns. The table below presents some views of respondents in different sectors.

Organisation	How TUBs affect their activities/business
British Swimming Pool Federation	'Demand in 2012 fell to 1000-1500 [swimming pools purchased] compared to 2500-3000 at time of [this] report (pre-2008 were 5-6000.'
Car Wash Association	'If car washes could not operate during droughts, dedicated car wash businesses would be closed.'
England Golf	'During 2012, there was a talk of a six month ban on sports in Thames Water area. Had this actually happened, 30,000 jobs would have been affected.'
Horticultural Trades Association	'If landscapers cannot use water efficiently to establish plants during the first phase of TUBs, then they will not be hired to establish or replant gardens. There is an immediate knock on effect on the supply chain (garden centers and growers).'
Kent Cricket Board	'Watering between weekend fixtures is vital for pitch safety.'
Racecourse Association	'If the going (firmness of the ground) cannot be managed within industry guidelines, trainers may pull horses from races to avoid injury.' This will lead to lower attendance levels which has a negative economic impact on the rest of the industry.'
Turf Grass Growers Association	'If [...] customers cannot establish turf, there will be: adverse environmental impact, adverse social impact, job losses, loss of income and wasted crops [for turf growers].'
Wandsworth Borough Council	'The impacts of not being able to water planted bedding plants and street trees is financial (tens of thousands of pounds).'

Table 3.2 Views of non-domestic water users on the impacts of TUBs on their organisations

The business plans of some UK water companies also include some additional insight on consumer attitudes towards TUBs, as presented in Table 3.2. Mixed consumer attitudes on TUBs emerge from these plans. Most providers stated that their consumers would want to either avoid TUBs entirely, or to keep the frequency to as low as 1 in every 10 years. However, some of these consumer responses imply that there may be some support for the use of TUBs and did not see a reduction of their frequency as a priority. These perceptions are also consistent with previous willingness to pay research, which found that consumers would prefer to experience water restrictions than see an increase in their bills.

Appendix 4: Supply-side drought management actions

Drought permit application process

In the event of applying for a supply side drought permit we will follow the process set out in the most recent Defra Drought Permits and Drought Orders guidance (October 2020 draft version most recent at the time of writing).

This process requires us to advertise the applications, hold a public consultation to raise awareness, and allow interested parties to make representations or object. Where feasible and applicable, we will aim to resolve issues raised in objections through compensation or mitigation measures. If an agreement cannot be reached, it is possible that a hearing or public enquiry could be required before the Environment Agency or Defra make a decision on granting the permit or order. Details on the drought permit / order application processes are provided in Appendix 3.1.

The timescales for drought order / permit applications (outlined in Table 2.2 of our Drought Plan main document) aim to comply with the Defra *Drought Permits and Drought Orders* guidance. For a drought permit the guidance states that once an application has been received the Environment Agency will usually make a decision within:

- 12 calendar days of the date of the last notice, where no objections have been received or all objections have been resolved.
- 7 calendar days of the receipt of a hearing report (if a hearing takes place).

For a drought order the guidance given is that Defra will normally process within 28 days from the date of application.

Our triggers assume a decision on a drought order / permit application will take up to 28 days from submission of an application. However, if there are delays the timescales for implementing a drought order / permit will inevitably take longer than proposed in Table 2.2. The number of permit (or order) applications is also likely to impact on the time it takes for Yorkshire Water to apply and for the Environment Agency to determine the outcome.

To help mitigate this, applications are grouped according to which of the five areas (East, North West, Central, South West and South) in our supply region they are located. In a drought the applications will be prioritised and phased based on the urgency for reducing compensations and / or the benefits to supply and the environment.

For details on each potential supply-side drought action please see the following in the separate Appendix 4 spreadsheet;

Appendix 4.1: North Area options

Appendix 4.2: South Area options

Appendix 4.3: South West Area options

Appendix 4.4: North West Area options

Appendix 4.5: River options

Appendix 4.6: Extreme drought options

Appendix 4.7: Long-term options

Appendix 4.8: EA Drought Orders

Appendix 5: Our long-term supply-side drought options

In the event of a long-term drought lasting more than two years we have nine additional supply-side options we would consider that we are unlikely to consider in a short-term drought. These are included as extreme options in in Appendix 4.6 with further details in 4.7. A number of these options would require a drought order or permit however, some are within existing licence permissions. However, additional permissions may be required from the DWI, planning authorities and the Environment Agency (e.g. discharge consents).

A number of our long-term options are feasible options within our WRMP and require new assets and / or infrastructure to be installed. Two of our long-term drought options, North Yorkshire Groundwater increased abstraction and East Yorkshire Borehole 2 are scheduled to be brought into supply in 2022/23 and 2025/26 respectively. These schemes are part of our WRMP19 solution to provide additional resilience in our Grid SWZ, dependent on the outcome of environmental investigations and abstraction licence applications. They remain as long-term drought options for the life of this Drought Plan but if any of our long-term options were implemented as a solution in a WRMP or regional plan, they will no longer be included as drought options. We will ensure our Drought Plan annual reviews and the next iteration of the Drought Plan reflect the status of long-term options if they are part of a solution.

Historically there has not been a drought event in Yorkshire that has lasted more than two years. In 1995-1996, there was a two-year drought where, had the situation continued, we would have required resources in addition to those made available through first and second-year drought options (levels 1 to 3). In 1996 we started to construct a transfer from Northumbrian Water's abstraction from the River Tees. However, as the situation improved the transfer was not completed.

We will consider the long-term drought options included in Appendix 4 in a second year of a drought, if there was a risk regional reservoir stocks would reduce to six weeks away from crossing the DCL. For any long-term options, we consider could be beneficial, we will build on preliminary Environmental Assessment Report (pEAR) / screening reports created for the long-term options. A full Environmental Assessment will be completed to consider any potential impacts and the monitoring and mitigation arrangements will be set out in detail. We would assess the environmental sensitivities to understood what mitigated measures would be required, as detailed in the completed Environmental Assessment.

During the 1995-96 drought a transfer from NWL to Yorkshire Water was proposed and infrastructure installed but not completed. Since 1996 we have improved our grid system and the ability to transfer resources around the region. These improvements

mean a repeat of the 1995-1996 drought would not require us to consider a transfer from Northumbrian Water. However, to ensure we have options available in a severe drought, not previously experienced in Yorkshire, we include long-term drought options as extreme options in our Drought Plan.

A three-year drought has never been experienced in the Yorkshire region since reliable records began, and there is a very low probability (greater than 1 in 400 years return period) of such an event occurring. Nevertheless, it is important for us to demonstrate that we have considered what actions could be implemented if such an unprecedented severe drought were to occur in the future.

We have long-term supply-side options that involve introducing new supplies to our network, reinstating a previously discontinued resource or increasing our use of existing licenced resources. As with all our options, the water would only be put into supply if there was no environmental, safety or drinking water quality risks, in accordance with the Water Supply (Water Quality) Regulations. The assets will be assessed prior to implementation to determine the risk to water quality and the environment. If any risks are found that cannot be mitigated the source will not be used. We will consult the Environment Agency, Natural England and Drinking Water Inspectorate (DWI) during the assessment process.

Section 2 of this Drought Plan and the Supplementary Report Drought Plan 2020 Worked Examples of drought scenarios discuss an unprecedented scenario in which some long-term drought options would be implemented. In this scenario, the decision to implement long-term drought options is made in the second year of an extreme drought and an abstraction from the River Aire plus either the Raw Water Transfer or Tees transfer pipeline options are selected. Each drought event will be different, and the magnitude and duration cannot be predicted. The timing of implementation and the long-term supply-side option(s) selected will be dependent on the drought situation as it develops.

When selecting which options to implement in a drought lasting more than two years, we would consider yield availability and where in our supply system the additional yield was required. Depending on which areas are most affected by a drought, the yield for some options may not be available and we would have to discount these. Our grid system allows us to transfer water around the region, but in a drought situation we would still need to consider where additional resource was most needed and select the most appropriate option for that area.

In Appendix 4.7 we have included the potential risks associated with implementing individual options and the risks to the environment that we would need to consider in a drought when determining the feasibility of each option. The timescales for implementing each long-term option will also determine the feasibility of the scheme.

Appendix 4.7 gives an estimate of the time to implement each scheme. These timescales allow for planning and environmental assessment as well as construction. In the scenario presented in Section 2 some of these options would not be completed in time to be available in a third year of drought. However, we may consider implementing schemes if there is a risk the drought could last longer than three years. Where resources allow, we may consider implementing more than one of these options.

We have identified appropriate planning requirements and Local Authority planning authorities who would give the required permits and approval for the long-term drought options, see Appendix 4.7. Before submitting a drought order or permit applications, where applicable, we will review the permissions required. We will discuss these schemes with the relevant planning authorities when we are moving into a long-term drought situation and the implementation of one or more of these schemes looks to be becoming more probable. We have strong relationships with the planning authorities in Yorkshire and discussion around permits and approvals could be quickly arranged when appropriate. At the point of understanding which options were needed, we would contact the relevant planners to arrange a meeting to discuss our proposals and the required permits and approvals.

Northumbrian Water transfer option

Our long-term drought options include a transfer of water from Northumbrian Water's abstraction on the River Tees into our supply area. This option could only be implemented if Northumbrian Water was able to provide the water at the time it was needed. Northumbrian Water has stated in its Drought Plan that 40Ml/d is potentially available for transfer to our region in a historic drought scenario.

The Yorkshire Water Tees transfer drought option, including environmental impacts, are based on a transfer volume of 40Ml/d. However, the feasibility of a Tees Transfer option would need to be considered in a drought situation and is dependent on:

- Northumbrian Water's own customers' needs
- Any other bulk supply agreements Northumbrian Water may have in place during a drought
- Water availability in the River Tees and its supporting reservoirs
- Conditions specified in an operating agreement held with the Environment Agency.

If resources were available, in the event of a drought, Yorkshire Water and Northumbrian Water would need to agree the transfer volume and terms and enter a

bulk transfer agreement prior to implementation of any scheme by Yorkshire Water to import from the River Tees. This would be done in consultation with the Environment Agency and Natural England.

In the event of a bulk supply agreement with Northumbrian Water being put in place, our Drought Plan will be updated to include the terms for using the import and to assess the impacts on our drought scenarios.

There are two alternatives for transferring this resource to a treatment works near York. One option is to transfer it via the rivers Swale and Ouse. The other is to transfer it via a pipeline. Implementation of the transfer options is likely to be more than 12 months, due to procurement, construction and planning timescales. When considering long-term options during a drought we will review the feasibility of implementing the pipeline or the river transfer option within the timescales available.

Due to the planning timescales involved, a transfer from the River Tees is a potential option for providing additional water supplies to Yorkshire in an exceptional drought lasting three or more years. We would ensure environmental sensitivities were managed, assessed and understood. This is summarised in Section **Error! Reference source not found.** and Appendix 4 with further details provided in the environmental reports produced in support of this drought plan (see SEA and HRA reports). The water would be made available under a bulk supply agreement with Northumbrian Water in consultation with the Environment Agency. The abstraction would be within the existing Northumbrian Water abstraction permissions on the River Tees. Therefore, no drought order or permit would be required for the abstraction. However, the option to discharge to the River Swale would require a drought order to permit the discharge into the Swale.

Appendix 6: Drought Communications Plan

Introduction

This document sets out our communications plans and details the messages and channels we would activate during differing drought conditions. The aim of the communications would be to inform customers, stakeholders and colleagues of the dry weather situation, whilst promoting the importance of making increased effort to save water in the event of a drought.

As a drought develops, we'll monitor and review the effectiveness of our drought communication activities and ensure we are promoting the right messages, at the right time via the right channels.

Traffic light campaign – data and weather triggered approach

Our drought communications campaign takes an agile approach. Our drought messages will escalate as triggers are crossed to move from green to amber then to red status. We do not rely on a single trigger for changing the status as our experience in recent years has shown that we need to consider multiple factors relating to demand, rainfall and reservoir levels that represent the current situation. Alongside these we consider both modelled scenarios and changing weather conditions that provide the evidence on the potential short to medium term future risks.

Amber triggers are linked to customer demand reaching the 75th percentile based on historic data, rainfall below 50% of average or reservoir stocks crossing the Environment Agency early warning trigger line. If demand increases further and either reaches the 90th percentile using historic demand, rainfall has been below 50% for more than six weeks or reservoir stocks are ten weeks from crossing the DCL this triggers a greater level of messaging and media.

During the campaign the messages for each of these levels will be communicated through a number of channels. Key channels will be around owned and then paid for advertising and will use a range of social and programmatic display including video on demand (VOD), digital out of home (OOH), audio, Spotify/radio etc. These can be activated on a post code level and messages can be escalated based on triggers linked to customer demand increases, low rainfall, reservoir levels and weather conditions.

Our agile communication strategy will also be based on our scenario modelling, which will identify the risks to security of supply if the dry period continues. This will identify the potential for crossing our drought triggers for actions that impose restrictions on use or alter abstraction authorisations to increase supply or reduce compensation flows (usually requiring a drought permit). These risks may override the triggers

described above as we may increase the status to help avoid crossing these triggers. In making this decision we will consider the time to crossing the drought action triggers and the current weather forecast. This helps us balance the need to use communications to help avoid crossing triggers with the risk of escalating communications when changing weather conditions may make certain messages inappropriate. For example, we would not want to advise customers to reduce garden watering if a risk of flooding became apparent, but we would continue with some level of messaging.

Communications objectives

Our communications during a drought will aim to reduce demand for water and keep customers and stakeholders informed on the developing situation. The objectives of our communication plan are:

- Reduce domestic water use by promoting water saving messages and offering free retrofit devices.
- In consultation with retailers providing services to commercial users in the Yorkshire region, promote the need for water saving to non-household water users in our region.
- Work with the Environment Agency and other regulators to pro-actively manage communications / messages about why a drought has occurred.
- Deliver clear and consistent communications in conjunction with other water companies and inset appointees within our supply area affected by a drought.
- Work with local stakeholders and third parties to promote drought communications in local communities.
- Communicate the activities we're undertaking to minimise the impact of the drought on customers and the environment.
- Engage with customers to build their trust to know that we're dealing with the drought.
- In the event of a severe drought, ensuring customers
    - Are fully informed of the situation and how they are impacted which will include restrictions on use more extreme than temporary use bans or non-essential use bans i.e. pressure reductions.
    - Have access to enough water to meet their needs e.g. standpipe locations or bottled water stations.

Target Audience

Our target audiences include all our customers and third parties in contact with our customers, they are grouped as:

- Five million domestic households
- Vulnerable domestic customers e.g. elderly, disabled, have a serious medical condition
- Retailers and over 120,000 non-household customers
- Sensitive non-household customers e.g. hospitals and care homes
- Inset appointees operating in our supply area
- Non-household customers using water for production
- Media (national and regional)
- Stakeholders. E.g. MPs, local authorities, Environment Agency, Ofwat, CCWater, Defra & non-government organisations (NGOs).
- Colleagues and service partners e.g. HomeServe, MMB, Kelda Group companies
- Emergency services.

To make our customer communications more effective we would use our Experian customer segments to understand how our messages need to differ in relation to the audience types. This would allow us to tailor our messages to have the best impact and enable us to target customers with appropriate messages. For example, promote garden related water efficiency in areas with gardens and not in those areas where predominately no gardens.

We would also use the customer segmentation data to identify target audiences based on geographical location, allowing us to make the message more relevant to the developing situation in that specific area, as well as identifying the most appropriate and effective communications channel to use.

Key messages

Our drought communication will aim to provide advice on how to reduce consumption and to explain what we're doing to reduce the impacts on our customers and the environment. The key messages will be based around the following:

- We're working hard to minimise the impact of the drought on our customers and the environment by managing and monitoring our water stocks.

- Everyone can make a difference and there are practical steps that can be taken to reduce use.
- We'll increase leakage reduction activity on our pipes and our customers' pipes.
- We have a unique grid system so that water can be moved around the region to where it's needed most.

Table 6.1 demonstrates the types of messages we would promote to our customers, stakeholders and colleagues at different points within a developing water resource situation.

Drought Stage	Situation	Yorkshire Water actions	Key message / action promoted to customers
Normal (green status)	The weather conditions are normal, and water availability is fairly typical for the time of year ▪ We have a plentiful supply of water in the region provided by numerous sources i.e. reservoirs, rivers and boreholes ▪ We manage supply through our unique grid system to meet demand in Yorkshire, moving water around the region as required, to maintain a balanced supply of available resources	▪ We monitor river, groundwater and reservoir levels, demand for water and changes in the weather to make sure we understand the current water situation ▪ We fix leaking pipes in our region to meet our annual leakage target ▪ We offer free water saving packs to customers and provide water efficiency information on the Yorkshire Water website and in our education centres and school lesson packs ▪ We deliver annual water saving campaign e.g. attending local events and shows	▪ Even in times of plentiful supply customers should use water wisely ▪ We can all play our part in conserving water for the future ▪ Efficient use of water helps retain more water in the environment, reduces the need for investment in new supplies and can reduce individual customer water (metered customers only) and energy bills

Developing drought (amber status)	There has been prolonged dry weather and reservoir stocks lower than usual for the time of year ▪ We continue to use our grid system to manage the amount of water we have available. Where appropriate we operate to conserve stocks in areas where resources are most affected or where there is a greater risk of environmental damage ▪ We reduce the use of river abstractions in line with licence conditions (hands off flows) to protect the environment.	▪ In addition to the above; ▪ We monitor the situation and predict the impact continued dry weather is likely to have on our water resource levels over the coming months ▪ We prepare to implement our Drought Plan if the situation worsens to minimise the impacts of droughts on customers and the environmental ▪ We work with stakeholders (e.g. Environment Agency, CCW, other water companies) to make customers aware of the situation ▪ We increase leakage reduction activity in reaction to breakouts due to ground movement ▪ We enhance our water saving messages to customers through a range of media	▪ We have experienced lower than average rainfall and although we are not in a drought there is a risk of a drought developing if the dry period continues ▪ Customers have a part to play in using water wisely and should take additional action to conserve water where possible ▪ If customers spot leaks they should report them to Yorkshire Water as soon as possible ▪ Yorkshire Water is operating to secure enough water for domestic and commercial use and the environment during dry weather ▪ Non-household customers utilising a lot of water should consider ways to reduce water use now, and consider resilience options if the drought continues.
Drought (red status)	We are experiencing a prolonged and exceptional lack of rainfall	▪ In addition to the above; ▪ We follow our Drought Plan to make the best use of the water	▪ Everyone must take action to help conserve water

	which is impacting on water supplies and the environment ▪ Temporary Use Bans are imminent or already in place ▪ We are preparing our drought permits / order applications or they are already in place ▪ If the drought continues we'll have to make decisions about how we conserve water for essential use and may need to impose essential use drought orders ▪ We are considering which long-term drought options will be most effective and if the situation worsens will start implementation	available and minimise the impacts to people and the environment ▪ We help deliver national campaigns on water saving ▪ We do all we can to reduce leakage from distribution pipes ▪ We work with stakeholders to ensure public health is our priority and that we minimise environmental impacts ▪ We provide regular updates through media channels on water resource levels and what/if any restrictions on water usage are in place ▪ We only apply water usage restrictions when absolutely necessary	▪ If applicable customers should follow restrictions that are put in place i.e. temporary use bans ▪ There is a realistic prospect that your water supply may be rationed if the situation worsens ▪ Current information on the drought and any restrictions in place can be found through the Yorkshire Water website, social media and other media communications ▪ We have plans in place should we enter a severe or prolonged drought situation and we will keep customers informed of the situation ▪
Severe Drought (red status)	Rainfall has remained low and water resources are not showing signs of recovery. We are approaching an emergency situation.	▪ In addition to the above; ▪ All stakeholders, water companies and agencies are working together to maintain water supply to customers	▪ We make customers aware that we are in a severe drought and that it is a serious situation ▪ Customer need to ensure they understand what restrictions are

	▪ We are seeing significant impacts such as fish kills/dry rivers/no water available for abstraction by business or agriculture ▪ Temporary use bans and drought permits / orders are still in place ▪ In the most sever situation public supply rota cuts may be in place ▪ Long term drought options are being implemented or are already in place ▪ Water companies are planning to use or are using emergency plans ▪ The Government are involved in developing plans for the area to ensure that public health is not threatened and that the environmental consequences are minimised as much as possible	▪ We forecast how the situation may develop over the coming weeks and months and how we can mitigate the impacts ▪ We prepare emergency drought orders in case we need to implement them	in place and adhere to the restrictions ▪ Everyone must play their part in helping to conserve water and only use what water they need ▪ Customers can receive regular updates and water saving advice on the situation through all media channels ▪ We are doing all we can to minimise the impacts and protect public health ▪ Please use water for essential use only. There is a realistic prospect that your water supply may be rationed

Recovering drought (amber status)	Following recent and significant rainfall we're no longer in drought but it can take time for water resources and the environment to recover fully ▪ We are continuing to operate as appropriate for the situation and will manage resources depending on how well reservoir, river and groundwater levels are recovering in individual areas ▪ We cannot forecast when a drought will end, however many droughts end with excessive rainfall and flooding is then possible	▪ We continue to monitor water resources very closely to track recovery ▪ We keep customers updated on what restrictions are still in place ▪ We work with other stakeholders to help customers and the environment recover from the drought ▪ We continue enhanced leakage reduction and water efficiency activity to help keep demand low ▪ We review the delivery of the Drought Plan and lessons learnt from the drought situation	▪ There are plans in place to aid a recovery but it's still important to be careful about the amount of water we use in our homes and businesses ▪ Thank you for your efforts to save water and report leaks. It helped, please keep it up ▪ It could take xxx amount of time and xxx rainfall to get back to normal. Some restrictions may remain in place until then ▪ Droughts can continue to affect your water supply during recovery

Table 6.1: Drought communications during different drought conditions

Communications plan

There are numerous channels of communication available to keep our customers informed. Many of these channels give us direct communication with our customers. Others will require us to work with third parties, including inset appointees, retailers, National Farmers Union and consumer groups, to deliver messages to a wider audience. We will work with retailers on an ongoing basis to ensure appropriate and timely communications for non-household customers in the Yorkshire supply area.

Initially communication channels will be used to raise awareness of low rainfall and encourage customers to use less water. As a drought develops, they will be used to keep customers informed of a worsening situation and notify them of any restrictions. The following paragraphs explain how these channels can be used in a drought.

Customers

Written customer communications

Any correspondence sent from us and our contract and service partners will contain key water saving advice/messages. Bills and envelopes posted during a drought will also carry a water saving message.

In the event of water restrictions, customers in affected areas would be sent direct customer communications.

Face to face customer contact

Customer drop-ins, customer service field team presence or roadshows will be organised in local shopping/town centres in key areas that are particularly affected by the drought (note during COVID19 pandemic these will not be implemented).

Colleagues would be on-site to answer customer queries, provide advice and distribute free water saving devices. Local customers would be invited to the drop-in by letter, media and social media promotions.

Any customer drop-ins or face to face meetings scheduled in other parts of the business will promote water saving messages and offer water saving devices. For example, we regularly communicate with customers (around 30,000 customers a month) on capital schemes and would include key messages on water saving.

Customer-facing field-based staff will be briefed with key messages and given customer literature and water saving devices to distribute to customers at properties where they have an appointment.

We would run an education outreach programme where our education centre guides will visit schools to talk to children about the importance of saving water.

Digital Channels

Website

Water saving advice would be heavily promoted to customers visiting our website via the homepage, cross sell pods and banners throughout the site. A video could be made and featured on the homepage advising how to save water easily.

We would also add new questions into the virtual agent on the website relating to water shortages, droughts and provisions and we would use a similar Q&A document for call centre.

We would need to develop a drought information/advice page on the website which would provide latest information on the situation (updated daily), including where to go if water restrictions are put in place, latest information on water stocks, as well as the areas impacted by drought conditions. Any social media or media activity should be linked back to this page.

Our web chat team would be on hand to provide any advice a customer may need on the developing situation.

If drought control levels were crossed we would potentially look to activate a "dark site", meaning the main focus of the site would switch to promoting advice or restrictions currently in place across the region.

Social Media

Our Twitter, Facebook and any other social media group pages would promote key water saving advice, devices and any other useful videos or messages. To create engagement opportunities, if the time was appropriate, we could run polls and competitions to prompt customers to think about water saving.

Influential bloggers, websites and forums would be sent regular updates on the water stocks and asked to promote water saving messages. Video's featuring water saving advice will be promoted via our social channels and sent to other relevant online platforms/websites.

Interviews with senior business people will be recorded and placed on Facebook, Twitter, websites, forums and blogs informing how we are managing water supplies and how people can help.

We would use Hootsuite, a social media monitoring tool, to monitor conversations across social media and use this platform to respond to customer enquiries. Yorkshire

Water's Communications Digital Team and our customer contact centre would be provided with relevant and up to date messages to help them respond to customer enquiries.

Enewsletter

Our existing customer database would be sent an enewsletter featuring water saving tips and links to special offers on water efficient gadgets. If the situation worsened, further enewsletters would be sent to notify customers of a drought and any restrictions on use.

We would work with the contact centre to gather more email addresses and increase the number of customers we could reach via this channel.

SMS blasting

Text messages would be sent via our blaster service to customers promoting water saving advice or restrictions.

Advertising

Paid for advertising

The current situation and water saving advice would be publicised through digital advertising and pay per click adverts on social media channels and key third-party websites. All social media adverts could be geographically targeted to customers in Yorkshire and we could change the message very quickly should the situation worsen.

We would also consider radio, newspaper and billboard advertising, particularly if water use restrictions were in place. In extreme cases of drought, television advertising would be used to communicate a conservation message to as wide an audience as possible.

We would also look to do pre-rolling (advert appears before, after or during a programme being watched online) on relevant websites promoting the messages.

Yorkshire Water Assets

A number of our vans and existing signs at our assets, such as water treatment works, would be branded with water saving messages promoting advice.

Additional signs would be produced and displayed at reservoirs, particularly those affected by the drought.

Customer contact centre

Our Customer Contact Centre (LOOP) staff will be briefed on how to talk to customers calling about water conservation and will be provided with an extensive Q&A document to respond to customer queries. Customer service advisors will also offer free water saving packs to customers.

Key conservation messages will be recorded to play to customers when on 'hold'.

As the situation worsened, we will would work with the contact centre to determine whether proactive calls to customers were appropriate.

Media Activity

Pro-active media activity

Media will be sent weekly updates on the current water supply situation. Interviews will be set up with environment/consumer correspondents across regional media channels to explain how we are managing water supplies and how customers can save water.

Media features would be developed to look at educating customers about how water is captured, the different sources of supply we use, how we work hard to get it to customers' homes from our treatment works and how they can play their part in conserving it.

Features will also be developed to show customers what we are doing to conserve water for example, they could spend a day with a leakage technician.

Localised stories will be prepared and targeted at the relevant media, focusing on local water supplies. Case studies will be developed of people who have changed their water saving habits and as a result are now using less water – these will be used to generate advice pieces in local media.

Competitions will be run with the local media, and the prizes related to water conservation e.g. water efficient kitchen appliances.

Reactive media activity

The Yorkshire Water Media Relations team will be available 24 hours a day, seven days a week to respond to media enquiries. Relevant spokespeople will be identified and trained from across the business to take part in TV or radio interviews. Comments within social media arenas like Facebook, Twitter, forums, blogs and websites will be responded to where it is felt to be appropriate.

Key Stakeholders

We will keep all key local and national stakeholders updated on the latest situation with tailored communications to ensure they have the information most relevant to them. As well as feeding information to stakeholders, we will ensure our communications promote two-way dialogue and stakeholders have the opportunity to ask questions and feed their comments into our plans for dealing with drought.

Yorkshire Water Customer Forum

We will share our plans for dealing with drought conditions with the Yorkshire Water Customer Forum and invite their challenge and feedback. We will also test our proposed customer and stakeholder communications plans with the Forum and invite them to help shape our proposals.

Regular email newsletter

We will increase the frequency of our existing regular email newsletter to stakeholders (including politicians, regulators and NGOs) to provide updates on the latest situation and the action we are taking. The content of the newsletter will be adapted to ensure it is relevant to the audience, for example by providing local advice and information to MPs and Councillors and a more regional position to key national stakeholders.

All newsletters will include links to more information on the website as well as contact details for the Yorkshire Water Public Affairs Team should anyone have any questions or wish to discuss the issues further.

One to one communication

We will bring forward planned meetings arranged through our Stakeholder Contact Programme to ensure key stakeholders have the opportunity to discuss the situation with Yorkshire Water Directors. The Public Affairs Team will offer meetings to other stakeholders who are not part of the Director level contact programme.

The Public Affairs team will also offer visits to our control centre, or key water treatment works for stakeholders to understand how we manage water resources. This will provide an opportunity to give them more detail on the situation and will also act as a media hook for getting across key messages to customers.

Water Saving Resources

Members of Parliament and local councillors will be provided with water saving information to hand out at surgeries, along with information to put on their websites and to issue in their email newsletters. Key NGOs will also be encouraged to share water saving messages with their members through their websites, newsletters and social media channels.

Colleagues

Making our colleagues aware and keeping them up-to-date with the developing situation will be key throughout any dry weather or drought situations. A number of different channels will be used to do this:

Intranet

The Yorkshire Water intranet will be one of the main places where colleagues can find the latest information on the water resources situation. We would post articles, updates, Q&As and videos to update colleagues on the key messages and inform colleagues about what we're doing to manage supplies, what current stock levels are and what key messages they should be giving to customers, friends and family.

Other channels

- Text messages and emails could be sent to all colleagues containing essential information on the situation.
- A weekly briefing could be emailed highlighting the latest need to know information
- Key senior managers and directors could tour the region holding face to face sessions with colleagues on the water resources situation.
- Colleagues who deal directly with customers, particularly face to face, will be briefed and sent specific regular updates so they can answer customer queries. This could be done via email, their local team meetings, or newsletters.

Working with other water companies

We will work with neighbouring water companies to develop joint communications for customers and media as appropriate. This will ensure clear and consistent messaging to maximise understanding of the water resources situation and the actions that our customers can take to make a difference.

Water UK will provide a coordination role for joint water company planning and communication, particularly if the drought impacts on multiple water companies.

Five neighbouring water companies in the north of England have developed a Water Resources North group. The purpose of Water Resources North is to ensure co-ordination of water resources discussions across the north of England. In the event of a drought the group would be instrumental in facilitating planning and communication for the north of England depending on which areas were impacted.

Proposed Communications Schedule

A communication schedule would be agreed in the event of a drought and would be revised as the situation progressed or recovered. Table 6.2 is an example timetable of drought plan communication activities based on the trigger lines described in our Drought Plan.

Feedback and evaluation

As the drought develops our communication campaign will be more effective if we obtain feedback to show us which messages and communication channels customers prefer.

A range of techniques will be used to measure and evaluate the effectiveness of the campaign:

- Response to surveys,
- Website hits
- Digital advertising performance
- Social media engagement
- Feedback from our online community panel
- Requests for water saving devices
- Feedback from customers in affected areas
- Stakeholder feedback
- Media coverage
- Colleague feedback

Trigger	Action
Demand reaches the 75th percentile, rainfall is below 50% of average or reservoirs cross Environment Agency early warning trigger line	Review current water efficiency activities and opportunities to increase customer uptake of free devices Request voluntary reductions using key messages and communication channels. Consider joint messages with Environment Agency and other water companies.

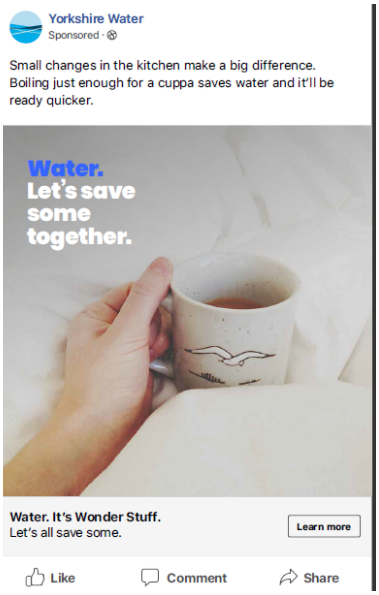
Reservoir stocks forecast to be 10 weeks from away from DCL	Prepare adverts for temporary bans on water use. Below are examples of the type of adverts we would use.
Reservoir stocks forecast to be eight weeks from away from DCL	Advertise/consult on temporary bans on water use.
Reservoir stocks 6 weeks away from crossing DCL	Impose temporary bans on water use. Distribute adverts and use communication channels to notify customers
Two weeks after imposing temporary use bans	Advertise and start consultation on drought orders and permits. Notices will be published in one or more local newspapers circulating within the affected area and in the London Gazette.
Six weeks after imposing temporary use bans	Impose drought orders or permits. Use communication channels to notify interested parties.

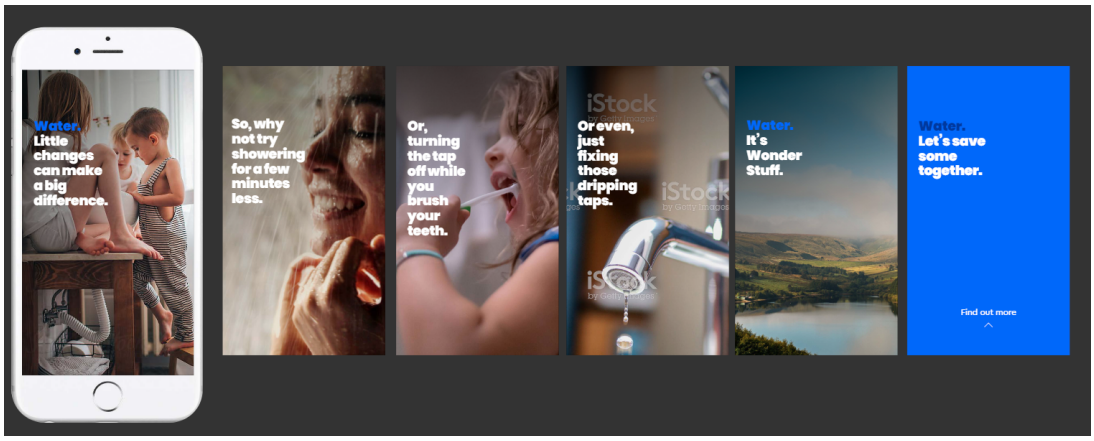
Table 6.2: Example communication schedule

Creative marketing material

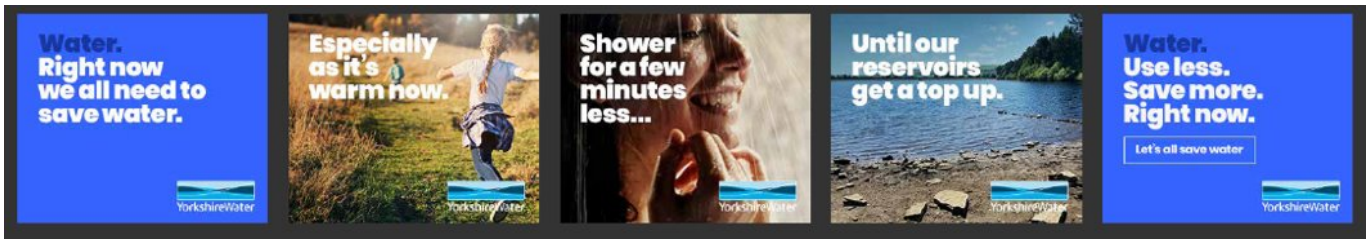
Below are examples of the types of marketing material we will use during a drought situation. We have demonstrated two levels of creative. In the early stages of a drought situation (developing drought/ drought) we will use a less severe message which will be replaced with a more urgent creative if the situation worsens (severe drought).


Water.
Small changes will make a big difference.
It's been warm and dry recently and we haven't had much rain. So, if you can hold off from watering the lawn, that would be a big help. Watering the flowers with a watering can saves water too. And using a bucket and sponge for the car uses a lot less than a jet washer. Making a few small changes every day will make a big difference.
Water. Let's save some together.
yorkshirewater.com/save-water
Water. It's Wonder Stuff.
Love water
YorkshireWater


Yorkshire Water
Sponsored
Small changes in the kitchen make a big difference. Boiling just enough for a cuppa saves water and it'll be ready quicker.
Water. Let's save some together.
Water. It's Wonder Stuff.
Let's all save some.
Learn more
Like
Comment
Share


Water. Little changes can make a big difference.
So, why not try showering for a few minutes less.
Or, turning the tap off while you brush your teeth.
Or even, just fixing those dripping taps.
Water. It's Wonder Stuff.
Water. Let's save some together.
Find out more


Water. Only use what you need.
For cooking.
For washing.
For household needs.
Water. Use less. Save more. Right now.
Love water
YorkshireWater


Water. Right now we all need to save water.
Especially as it's warm now.
Shower for a few minutes less...
Until our reservoirs get a top up.
Water. Use less. Save more. Right now.
Let's all save water
YorkshireWater

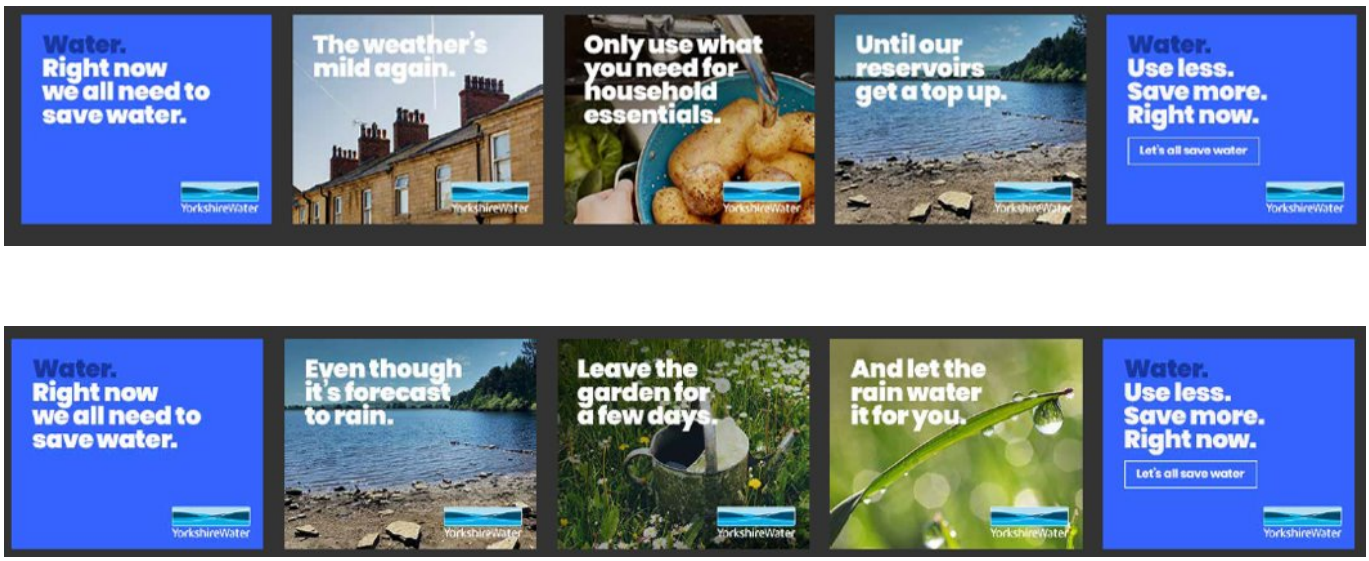
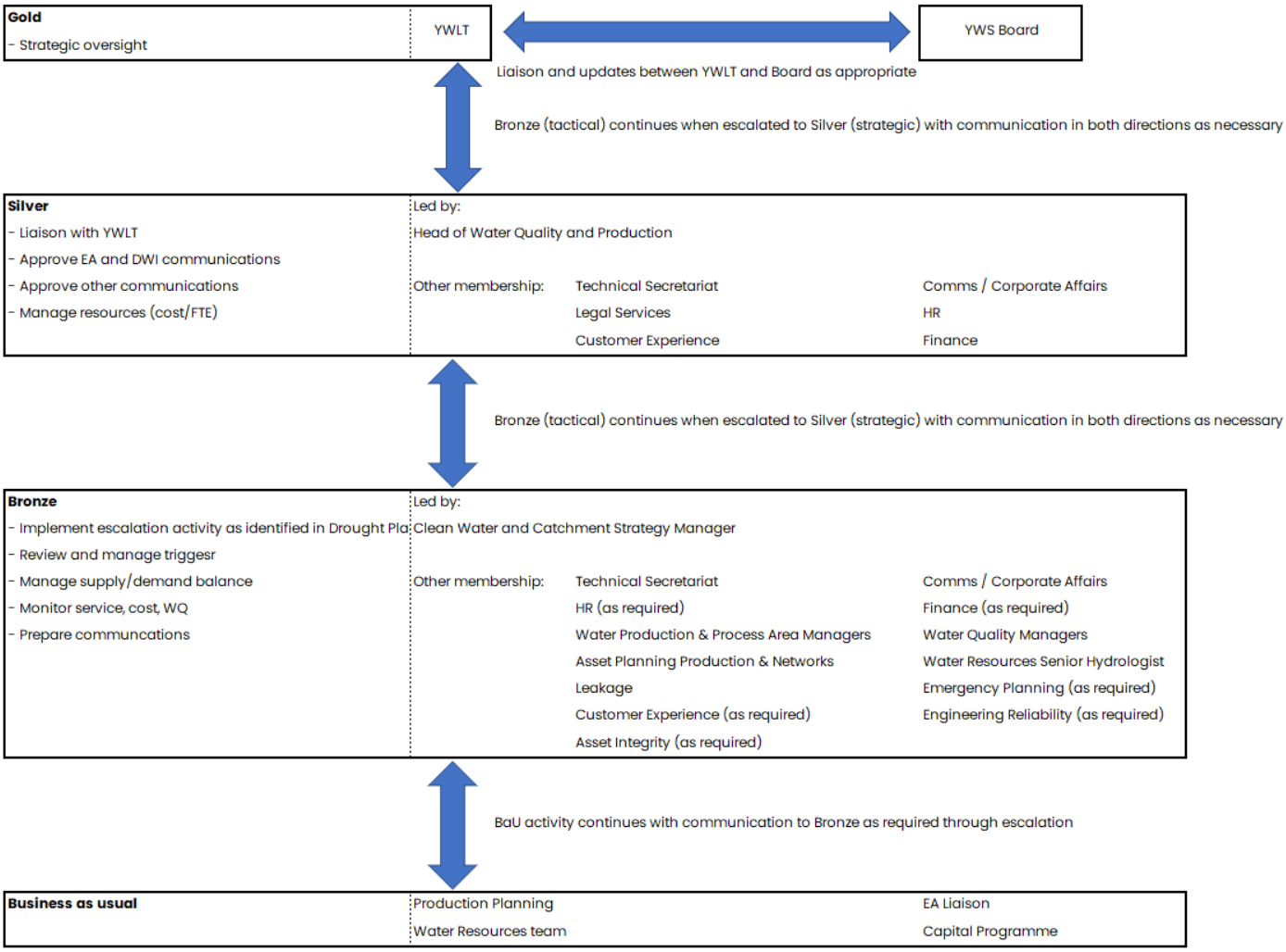


Figure 6.1: Drought communication example visuals

Appendix 7: Example company drought management structure



Thank you