Water UK
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www.water.org.uk

Learning from the impacts of the 2018 freeze-thaw

Third quarterly update report

1. Introduction

In September 2018, Water UK published a report on the freeze-thaw event that affected some customers in certain parts of the country[1]. In that report we committed to take forward eight collaborative actions, building on the measures being taken individually by companies as part of their action plans to strengthen preparedness for, and our response to, cold weather events.

This is the third of our quarterly update reports (previous reports are available on the Water UK website[2],[3]) which we are using to provide transparency on progress for the duration of the programme.

2. Assessment of progress

Good progress has been made in all areas, and outputs from the programme are being integrated into the way water companies prepare for and respond to freeze-thaw and other extreme events. Of the eight priorities, the shorter-term actions have been essentially completed or moved on to follow up stages. We are actively progressing the longer-term policy issues that were either directly referred to in the September 2018 report or arising from addressing other priorities.

Appendix 1 provides a summary of the progress being made against each priority with headlines from three specific areas highlighted in the following sections.

2.1 Advice to non-household customers (Priority 6)

Water UK together with non-household retail associations, self-supply organisations, Ofwat and EA have developed an approach to improve the interaction and engagement between water and wastewater wholesalers and non-household water retailers to ensure that risks to non-household customers during extreme weather events are mitigated. This is will build on the material produced by AHDB, supported by NFU and Water UK, specifically to livestock farmers on resilience and preparedness[4]. This activity, which is also part of the sector's dry weather preparation, will take place during the summer of 2019 and inform initially the EA-led National Drought Group.

2.2 Reaping the benefits of the digital world (Priority 7 and 3)

The digital world and the impact of big data is an increasing focus across the water industry. Water companies are exploring how harnessing the possibilities offered by open data can improve the way major incidents are planned for and responded to. Several workstreams draw heavily on

[1] https://www.water.org.uk/publication/learning-from-the-impacts-of-the-2018-freeze-thaw/
[2] https://www.water.org.uk/publication/freeze-thaw-report-december-2018/
[3] https://www.water.org.uk/publication/learning-from-the-impacts-of-the-2018-freeze-thaw-2/
[4] https://ahdb.org.uk/water-supply-problems-a-guide-for-livestock-farms

understanding how assets behave and respond to stresses and to understand how and when such conditions occur. Water UK are collaborating with SWAN[5] and the Open Data Institute (ODI) to jointly host a workshop in September 2019. By sharing experiences of water companies with the wider input from the members of the supply chain that are part of SWAN and the experience and expertise of ODI, the workshop will examine what practices are currently adopted by water companies and what new approaches could be utilised in the near future.

2.2 Assessing policy on supply pipes (Priority 8)

Whilst the freeze-thaw affected water pipes in general, the impact was particularly severe on small-diameter 'service pipes' that connect street mains to customer premises. Service pipes are shared ownership with the first part, the communication pipe, being owned by the water company and the second part, the supply pipe, owned by the customer. This shared responsibility can lead to confusion for customers, especially if the supply pipe part has failed.

In 2013, Defra and the Welsh Government consulted on one possible approach for dealing with this problem by putting forward a series of options for the potential to transfer the ownership of the supply pipe to water companies. At the time policy change was not proposed, and companies encouraged to adopt voluntary approaches.

Water UK have commissioned an assessment of views and perspectives are today among industry and our key stakeholders. This assessment will take place over the coming two months and will inform industry discussion in the autumn.

In parallel, two related pieces of research are underway: the first for DWI on the economics of addressing lead supply pipes, and the second for UKWIR on the role of customer side leakage. In combination this work will inform Water UK's view about what changes, if any, might be beneficial in our approach to customer supply leakage.

3. Building on preparing for no-deal EU Exit

In our March report we covered the steps being taken by all UK water companies to prepare for the eventuality of a no-deal EU Exit. This involved a full re-think of the approach to managing national scale incidents in a way that supports and augments the steps taken by individual companies. The processes and protocols put in place put the industry in a robust position for the possibility of no-deal.

The industry is looking at the lessons learned and reviewing the extensive incident management and planning work to draw out best-practice implications for future events, including extreme weather. This will assess: working with suppliers, coordinating across companies, managing information flows, interfacing with Government and regulators, communications with the public, and taking or recommending cross-cutting policy or operational decisions.

4. Leading continual improvement

Water UK continues to facilitate opportunities for all UK water companies to share their approaches, best practice and promote continued learning and development across water companies and our supply chain. Since the freeze-thaw events of early spring 2018 water companies have been improving the capacity and capability to cope with future events. Key industry wide protocols and procedures have been updated and improved (such as the Mutual Aid scheme and the incident response

[5] https://www.swan-forum.com/

protocols). The net effect being that as and when water systems are put under stress – be it from extreme weather or other causes – the sector will be better placed to minimise impacts on consumers.

Our next report in September will conclude the reporting commitment. However, we are committed as an industry to ensure that all are in a better place to manage the impacts of future cold weather events. In the lead into the winter readiness preparations there will be a further test of the uptake of the outcomes of actions in each of the priority areas in company plans. This will be overseen by the Operations Strategy Group.

Appendix 1 – Summary of progress on collaborative priorities

Priority 1: Agreeing an industry approach to planning for supply risk associated with extreme weather-related incidents

A dedicated group under the oversight of the Operations Strategy Group will convene in October 2018 to develop this concept further and propose an appropriate action plan. Deadline: October 2018 to convene group.

Status Dec 2018: Water companies have been discussing their approaches to risk planning bilaterally. As part of the December 2018 event, we held an initial discussion on the impact of the March 2018 freeze-thaw event, and how this had changed companies' approach to risk management. The aims were to share knowledge, best practice, that can subsequently be implemented in the respective organisations, and assess the risk appetite for any other extreme weather events (i.e. freeze-thaw, prolonged drought, etc.), across the industry. The group agreed that it needed to continue to engage with all water companies and have formal face to face workshops on a quarterly basis. The next session is planned for the 18th January 2019 at Severn Trent Centre, in Coventry, to develop its approach further.

Status March 2019: The working group has been established, with a programme of activity to conclude by September 2019. The aim is to share and implement best practice around management of the risk associated with extreme weather events so that the shared industry understanding enables future events to be better predicted and manged. The current workplan will bring together the outputs of relevant groups offering a holistic view of the relevant options and identify other potential areas of concern. The following deliverables form the basis of the workplan

- Develop a deeper understanding of the causes;
- Identify industry wide risk events of concern;
- Collaborative work around risk prevention;
- Mutual support to mitigate risks;
- UK wide assessment of risk.

Status June 2019: The programme of activity is on track to be completed by September 2019. The aim is to share and make recommendations and produce a best practice reference document to help the water industry prepare to minimise the risk of extreme weather events leading to interruptions of supply of drinking water. The best practice guide will offer advice and guidance on risk factors that increase the likelihood of supply interruptions in extreme weather events e.g. planning of operational activity (maintenance, reservoir inspections), unplanned outage, volume and age profile of outstanding leaks (both company and customer side), understanding intercompany connectivity, resource (people) availability, chemical stocks and associated access to sites.

The shared industry understanding will enable future events to be better predicted and the risk of supply interruptions managed better. The current work plan remains to bring together the outputs of relevant groups offering a holistic view of the relevant options and identify other potential areas of concern. The following deliverables are to form the basis of the work plan and were updated with the progress following the most recent workshop:

- Develop a deeper understanding of the causes leading to a demand surge as a result of an extreme weather event leading to an inability to supply customers with potable water;
- Identify industry wide risk events of concern: the risk event will be quantitatively specific to each company, and will be defined in the best practice guidance document as a surge in demand because of an extreme weather event (hot or cold) that increases the risk of supply interruptions of potable water;

- Collaborative work around risk prevention: The best practice guidance document will offer recommendations on mutual aid to avoid supply interruptions, particularly in areas of low resilience, by collaborating with neighbouring water companies and communicating effectively with big consumers;
- Mutual support to mitigate risks: the outputs of other OSG groups respective to NIM and PIM and Brexit plans will be collated and included in the best practice guide;
- UK wide assessment of risk: several options for assessing risk will be captured as part of the best practice guidance document;
- Development and adoption of a common method of measuring resilience across the industry.

Priority 2: Assess the availability of alternative water supplies

The Water UK Security and Emergency Planners Network (SEPN) will review existing arrangements and develop a robust framework to enable the provision of alternative water supplies, including an assessment of wider supply chain ability to provide bottled water during a major incident. By the end of March 2019, the group will assess the adequacy of the total volumes currently accessible by water companies collectively (both directly held and through contracts with bottled water and third-party logistics providers). Deadline: March 2019.

Status December 2018: A data gathering exercise has taken place which highlighted some concerns amongst companies about the ability of bottled water provision contracts to manage multiple requests. Several companies are assessing their contractual arrangements and looking to spread the risk across several providers. The concept of a national bottled water bank has support in principle, but questions remain about the operability of such a model. Discussions have taken place with commercial alternative water supplies (AWS) providers and assurances given that some stock levels have been increased. Given the importance of this area (including for how we manage other areas of potential disruption) we plan to publish an update report slightly earlier than planned, by the end of February 2019.

Status March 2019: The survey of company approaches to AWS has been carried out and a report produced. Although there was support for the principle of an industry controlled bottled water bank there were reservations around the practicalities of this. It was agreed that although this was a good idea in theory there are practical limitations for various reasons, including the location, management of, access to and funding of regional depots. Whilst there already exists an industry wide bottled water bank offered by a commercial organisation; it is up to the discretion of individual water companies whether they 'buy into' this shared resource.

There was support for the principle of industry-controlled bottling plants (either static or mobile). Should individual companies progress with the procurement of static or mobile bottling plants then this equipment would fall within the scope of equipment available for Mutual Aid.

The review also indicated the need for a review and refinement to the approach for multiple requests for Mutual Aid. This has been carried out by the SEPN and an updated version published on Resilience Direct. It has been exercised and refined as part of the Brexit planning activity resulting in greater co-ordination across the industry and it is envisaged this approach will continue and can be utilised for any wide scale event involving multiple companies.

Status June 2019: Water UK's National Incident Management (NIM) team reviewed the recommendations from the report and will compile a central data set to demonstrate the extent of bottled water capacity and capability by August 2019. By compiling this at a national level it will be possible to assess the scale of incident and customer base that can be provided with bottled water as an alternative to the public water supply in extreme events.

During the activity preparing for no-deal Brexit Water UK invested NIM with the responsibility to oversee Mutual Aid requests during its time of shadow operation. The on-going review of the approach to no-deal Brexit will also assess the impact of mutual requests Mutual Aid, thus addressing one of the challenges faced during the freeze-thaw event.

Priority 3: Hold an Innovation Exchange on alternative water supplies

Severn Trent Water will host an innovation event for water companies and suppliers to consider all aspects of alternative water provision, exploring the art of the possible and the scope for the future. This will be carried out jointly with British Water who have an established process of developing and running Innovation Exchanges, by the end of December 2018. Deadline: December 2018.

Status December 2018: The first of two events focussed on showcasing and sharing innovative approaches to AWS was held on 20th December 2018 with the Future Water Association[6]. The second event with British Water is planned for January 2019. These events provide opportunities for water suppliers and the supply chain to explore new approaches to addressing the challenges of provision of AWS. The future water Association event has also included two innovative technology scouting exercises.

Status March 2019: Due to attention being diverted to no-deal Brexit planning it was not possible to hold a second event in January 2019. This is being maintained as an option for later in the early summer. Companies continue to share experiences through industry peer to peer networks.

Status June 2019: Water UK's OSG considered the need for a second workshop or innovation event on alternative water supplies. The event held in December 2018 was highly valuable, however at this stage it was considered that a second innovation event would be best focussed on the topic of Big Data. See priority 7.

Priority 4: Review the regulations for the provision of alternative water

Water companies will review the existing regulatory framework by the end of March 2019 and determine where any changes could be made to improve the way companies address alternative water supplies. Following this assessment, Water UK will approach government and regulators to seek their support for any proposed changes to the regulatory framework for alternative water supplies that have been identified. Deadline: March 2019.

Status December 2018: A data gathering process (separate to the one mentioned under priority 2) is being concluded to capture the views of companies as to the suitability of current planning thresholds for the supply of alternative water contained within regulation (SEMD). Companies are being asked whether the existing planning thresholds are fit for purpose given changing customer expectations and, if not, what changes should be introduced and how. The outputs from this will be assessed by the SEPN and disseminated at the February meeting and feed into Defra's plans to review SEMD in 2019.

Status March 2019: The reviews carried out by water companies indicate that existing regulations are largely fit for purpose, although companies recognise that as expectations evolve there will need to be revisions to support enhanced planning for example consideration should be given to reviewing the way populations are set for planning purposes based on a percentage of the customer base and

[6] https://www.stwater.co.uk/news/news-releases/we-hosted-industry-wide-event-to-look-at-weather-related-operati/

ensuring a regular review of planning thresholds. The industry will continue to keep SEMD requirements under review and maintain dialogue with Defra.

Status June 2019: Water UK have undertaken initial discussions with Defra on the potential for a review of legislation, regulation and industry standards related to emergency provisions as part of a wider discussion. These early discussions have proved helpful and we will support Defra in building on this.

Priority 5: Improving the robustness of arrangements under which bulk supplies are provided between companies

Companies will assess the implications of the risks within bulk supply agreements regarding both water quantity and quality. The assessment will propose modifications to the framework. An initial assessment will be carried out by end December 2018, initially via the Water UK Drinking Water Policy Advisory Group (PAG). Deadline: December 2018

Status December 2018: A working group of the drinking water Policy Advisory Group (DW PAG) has reviewed data on the extent of bulk supplies, the types of agreement in place and the criticality of the supply. Whilst there are several different supply types there are common risks to both the quality and volume of supply. The DW PAG has proposed a template for an MoU between parties to outline expectations for each when managing bulk supplies. This MoU will cover dialogue, expectations and transparency.

Status March 2019: This task has been completed by DW PAG. The proposed MoU (see Box 1) was shared with OSG. The PAG also made a series of recommendations to improve the way all parties operate bulk supplies with focus on ensuring bulk supply commitments during periods of stress. These will be discussed at the next OSG meeting due for early May 2019.

Box 1: Memorandum of Understanding

All parties operating or receiving bulk supplies agree to ensure that there is:

- Proper process in place for routine dialogue on the operation of the supply. This will include disclosure of any planned activity by the supplying company and the strategic importance of the supply to the receiving company;
- Proper process in place to manage variances to the agreement both short-term and long-term and considering the impacts on water quality and water quantity. Both parties should agree the lead times needed to manage specific variations;
- Proper process is in place to ensure full communication between operational and control room staff during unplanned or emergency situations;
- Full discussion of risks identified in DWSPs or mitigation measures being addressed by Undertakings and Notices.

Status June 2019: The approach proposed by the DW PAG was accepted by Water UK's OSG and the MoU will be integrated into company plans and procedures. The integration of the protocol will be tested as part of our one-year on exercise.

Priority 6: Improving engagement with affected customers

We will explore this further, starting at a workshop for water companies and NHH retail organisations hosted by South West Water at the end of November 2018. Water UK will work with water companies and NHH retailers (through MOSL and the UK Water Retail Council) to test the codes and guidance

and conduct an exercise to simulate a range of crisis scenarios. This will be completed by March 2019.
Deadline: November 2018 / March 2019

Status December 2018: Dialogue with NHH retailers through workshops related to both the freeze-thaw and to the dry weather have highlighted a general lack of awareness of roles and responsibilities and of procedures, codes and guidance that exists to support the management of unplanned events. Several workshops over the past 12 months have tried to address this but to date the progress has been limited. For example:

- In November 2018, South West Water hosted an event for NHH retailer organisations to share the lessons learned on the freeze-thaw. The feeling at the workshop was that there was an overall lack of awareness of the protocols and systems that are already in place to support the management of extreme weather incidents.
- In December, Yorkshire Water hosted an exercise with retailers which ratified the findings from the South West Water event. 11 retailers and 5 wholesalers were present. Yorkshire Water will be sharing these learnings with the industry and will be developing a notification and communication procedure for extreme events, proposing that wholesalers adopt this as part of their incident management plans and protocols.

Water UK and the UK Water Retail Council have agreed to meet first thing in the new year to establish how to overcome barriers to progress. Water UK is also convening a meeting of NHH market experts from wholesalers and retailers in January 2019 to deep-dive into the reasons behind this lack of progress and make proposals for change.

On ‘ensuring coordinated communication throughout the event to regulators, Local Resilience Forum (LRF) partners and customers’ the SEPN have developed minimum standards for water companies in terms of liaising with LRF’s, from planning phase to triggers and incidents. This has been circulated for review and will be published February 2019.

Status March 2019: Given that the issues around communication and engagement with non-household customers are not unique to freeze-thaw Water UK have considered how best to bring together programmes of work that are being considered in the wider industry. As a result, Water UK are aiming to align work with Ofwat, EA, Waterscan and UKWRC to ensure co-ordinated effort to address how best to manage water service provision to non-household customers in any extreme event. As a group we propose to broaden awareness of the roles, responsibilities and options taking a phased approach. This approach was supported by the NDG at its meeting in March. Water UK will continue to develop this in conjunction with Ofwat and retailer organisations.

Status June 2019: Working with non-household retail associations, self-supply organisations, Ofwat and EA an approach has been agreed with the intention of improving the interaction / engagement between wholesalers and non-household water retailers to ensure that risks to non-household customers during extreme weather events are mitigated. To move forward we will collectively address the following tasks;

- Collate existing material (e.g. market codes, TUBS code, sensitive customers);
- Raise awareness of existing material to key audience;
- Build on lessons learned, especially from self-supply;
- Test existing documents (e.g. through exercises or scenarios)[7];
- Promote and ensure awareness of the structure of the arrangements in place for managing extreme weather to both retailers and wholesalers

[7] Waterscan progressing with self-supply users (discussed as SSUF 13/6)

Priority 7: Sharing insights on the use of big data to understand network performance better

By December 2018, the Operations Strategy Group will agree a programme of activity to promote sharing of insights and developments in the use of smart networks, covering (among other things) the work of existing Water UK networks, relevant national innovation and big data conferences, and academic research. Deadline: December 2018.

Status December 2018: The OSG has undertaken to share examples of where big data is being used in companies to benefit the understanding of the network and its behaviour in extreme weather conditions. At the December workshop on winter preparedness, STW outlined how it had been using big data to develop its approach to system visualisation (a graphic representation of network modelling and diagnostic capability) and work prioritisation. In addition, several companies are working together to demonstrate the use of big data. This will be discussed at the next meeting of the OSG in early 2019.

Status March 2019: Water UK is working with Ofwat and the Open Data Institute to develop this priority. Water UK, Ofwat and Open Data Institute are discussing the merits of a project to support companies in moving towards an open data culture. The use of big data is a promising tool to increase ability to understand and react to extreme events, however there are concerns over how it may be implemented. The project seeks to provide a platform for companies to understand what would be required to enable the secure use of open data. We aim to develop this work further in Q3.

Status June 2019: Water UK are working with SWAN Forum[8]to establish a showcase workshop event leveraging both water company and supply chain networks and smart water expertise. This workshop will be held in London in September 2019.

Priority 8: Enhance customer side resilience

Water UK will work with others to carry out a fuller analysis on the barriers and solutions to addressing customer side leakage. The analysis will inform policy, regulatory and business decisions and be completed by September 2019. Water UK will work with water companies specifically to update our understanding of the policy implications of company supply pipe ownership. Deadline: September 2019.

Status December 2018: Water UK are due to commission in January a project to consider the economic costs and benefits of supply pipe adoption (and how this compares with other interventions to reduce water demand) as part of our wider work on per capita consumption. This work will also include stakeholders with an interest in this area. As part of this work there will be an assessment of supply pipe policy that will support our ongoing discussions with Defra and regulators about the potential to review government policy. This will be explored further in the next quarterly report. In parallel, Water UK's policy advisory groups will consider the impact of, barriers to and appetite for supply pipe ownership during the first quarter of 2019.

At the same time as addressing the strategic policy issues associated with customer side resilience companies are also working with customers to increase the ability to identify and remedy leaks on or in properties which it is estimated accounted for over 70% of the additional demand.

- Companies have improved and maintained the free supply pipe repair schemes or increased their 'find and fix' resource; changed the way they interrogate billing data to proactively identify customer side leakage and carried out enhanced home and business visits from a water efficiency perspective;

[8] https://www.swan-forum.com/

- Companies have established winter readiness campaigns and support programmes to help customers prepare for (free lagging or tap covers) to advice and information presence on websites and social media.

Status March 2019: A working group of Water UK members has been established to consider policy on supply pipe adoption This group will identify the policy options on supply pipe ownership from a range of perspectives – improving drinking water quality (lead pipe removal), customer side leakage – and propose an approach to address these areas as an industry.

Water UK have commissioned a project to consider the range of interventions available both to water companies and other stakeholders to drive a reduction in water use (PCC). This project will look at all options – including addressing customer side leakage – and will be a cornerstone of the industry's contribution to the expected Defra consultation on PCC reduction in spring 2019.

Status June 2019: Water UK have commissioned WRc to carry out an assessment of attitudes and perspectives of industry and external stakeholders. This assessment will take place over the coming two months. WRc are, in parallel, carrying out two further, related pieces of research: the first for DWI on the economics of addressing lead supply pipes, and the second for UKWIR on the role of customer side leakage.