Thames Water's Response to Ofwat's Request for Information – Review of Freeze/Thaw Incidents

06 April 2018

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Glossary of terms

CCG	Customer Challenge Group
CGS	Customer Guarantee Scheme
CMOS	Central Market Operating System
CPP	Critical Pressure Points
DC&E	Digital and Customer Engagement team
DM	District Meter
DMA	District Metered Area
DWI	Drinking Water Inspectorate
GSS	Guaranteed Standards Scheme
GIS	Geographical Information System
IVR	Interactive Voice Response
LMC	Logistics Management Centre
LRF	Local Resilience Forum
LRGL	Local Regional Government Liaison
NST	Network Service Technician
PMA	Pressure Managed Area
PSR	Priority Services Register
SCG	Strategic Coordinating Group
SEMD	Security Emergency Measures Directive
TCG	Tactical Coordinating Group

Executive summary

Between 3 and 9 March, our business and customers experienced an event unprecedented in scale and complexity, and which resulted in approximately 60,000 supply interruptions and incidents of low pressure lasting 3 or more hours in length. This document provides our responses to the questions posed in the request for information on 19 March 2018 and explains:

- how we were prepared for the cold weather;
- our current understanding of the cause of the issues our customers experienced; and
- how we responded to the event as the severity escalated.

The severe freeze-thaw we experienced in the first weekend of March gave rise to a sudden increase in bursts on our network and our customers' pipes, leading to a rapid increase in demand beyond what we had predicted and prepared for.

While we are still in the process of reviewing the event to understand what happened, the root causes and what we could have done differently, we know that the models we use to estimate the likely impact of a weather event significantly under-predicted the impact of the cold weather and subsequent thaw on our network and our customers' properties.

While we had prepared for the cold weather, with some preparations in place as early as October 2017, we used the predictions from our models as the basis for our preparation for the cold weather. These advance preparations helped mitigate the impact of the sudden increase in demand, however they did not fully insulate all of our customers and between 3-9 March there were approximately 11,000 supply interruptions which lasted 12 hours or more.

Had our models accurately predicted the scale and severity of the event, we would have increased our preparations for the cold weather event, including increasing our resources in the field and contact centres during the weekend of 3-4 March, and increasing the treated water in supply sooner.

We are continuing to examine the root causes of the failure of our models to forecast the impact of the weather pattern on bursts, and demand. We will focus on what we can do to improve the accuracy of these models, and whether there are lessons we can learn in how we prepare for and manage future events including how we respond to residual demand uncertainty. We are also reviewing the support and communications we provided to customers during the event to identify further ways we can improve our response to events.

Section A: Factual details of freeze/thaw event

Question A1

Provide details of the impacts of events on your network / customers using the attached tables (please complete both sheets). We are requesting information from the period 14 February 2018 to 14 March 2018. Please specify on which dates your company considered it was managing events rather than business as usual (the end date should be no earlier than all customers being back on supply). If you consider it appropriate, you may extend the date range (e.g. to the start of February) and explain why additional dates are relevant. You may not reduce the date range.

Our response

Our response to this question sets out:

a) The key period over which we were managing the impact of the severe weather.
b) The period over which we were preparing for cold weather and how those preparations escalated prior to the arrival of the cold weather.

a) We were actively managing and responding to the impact of the cold weather between 26 February 2018 and 12 March 2018. Within this period, the impact on our network and customers' pipes was greatest between 3 March and 9 March.

b) Due to our preferred approach to managing the risk of cold winter, we were managing the 2017/18 winter as a formal event from 19 October 2017. We escalated our management of the event as we received weather forecasts from the Met Office. Table 1 below sets out the time periods over which the event was escalated and the definition of each event level.

Table 1: A timeline of our winter event management approach

Date	Level of event	Event level definition	Reason for escalation
19 October 2017 – 22 February 2018	Level 1	An operational occurrence or minor localised business disruption (managed locally)	N/A
22 February 2018 – 26 February 2018	Level 2	An event that is localised / limited in scope and contained (managed by a middle manager)	Yellow weather warnings and weather forecasts from Met Office suggested low likelihood of medium impacts in our area.
26 February 2018 – 3 March 2018	Level 3	An unstable, severe or uncontained event (managed by senior manager)	Weather forecasts suggested an increasing likelihood of severe weather in our area.

3 March 2018 – 12 March 2018[1]	Level 4	Emergency / Critical business disruption (managed by an executive director)	Water demand increased beyond our predictions, combined with a significant spike in customers experiencing supply interruptions.

Sources: Thames Water Event Management Arrangements, and J5 Event logging system

Please see our response to question B1, which provides more information on our intelligence gathering processes and how we use these to prepare for severe weather events.

[1] We reduced the level of the event from 12 March 2018 as we recovered control of the issues caused by the severe weather.

Question A2

Beyond the issues highlighted in Tables 1 and 2, please provide details of any further impacts your network or customers (by customer type) experienced that your company had to respond to?

Our response

As highlighted in our response to A1, we experienced a severe cold weather and supply demand event during the period covered by this request for information (RFI). We explain in our responses to this RFI the impact these events had on our clean water business. There were no other events in relation to water supply during this time.

During the same period, we also managed the impact of cold weather on our wastewater network. We put in place plans to ensure our customer-facing waste activities would not be affected by the snow for example through mitigating the risk of power outages on wastewater pumping stations. As a result, the cold weather did not have a significant impact on our wastewater network and it did not affect wastewater services to customers.

Question A3

Details of how responding to the incident impacted on your wider business's "business as usual" operations during the incident period. Where possible provide an indication of the scale and nature of these impacts.

Our response

As part our overall resilience and winter planning, we had already developed a number of mechanisms to redeploy non-operational staff and alliance partners to provide additional customer support in severe weather events. However, the models we used to predict the impact of the weather on our network and customers significantly underestimated the scale and severity of the impact, particularly on our customers in London. We used these models to inform our preparations for the event and ultimately, this challenged our ability to respond at a pace that corresponded with the escalation in customer impact. This meant that some areas of our business as usual operations were impacted as resources were diverted to support customers.

The areas affected included:

- Our ability to receive and respond to revenue (billing) calls; and
- Our leakage activities, and the level of leakage after the weather returned to normal.

Revenue calls

During the incident, we received an unprecedented number of customer contacts about supply interruptions and low pressure. Table 2 below provides some context as to the scale of contacts in the case of calls from customers reporting water supply interruptions.

In line with our emergency procedures, we took steps to prioritise customer contact handling for customers who need emergency or priority support relating to their water and wastewater services, over the handling of billing issues. The rationale for this was that while we recognise billing issues can be distressing for customers, they are not a public health risk in the way that impacts to our to water and waste water services are.

We therefore took the decision on 27 February to reduce the number of call agents handling inbound calls relating to billing issues in order to receive and respond to customer calls about supply interruptions and low pressure. On 28 February, due to the significant number of operational calls we were receiving, we took a decision to close our revenue (billing) contact centre to inbound calls, opening this up again on 7 March. Our revenue contact centre receives calls relating to customer billing queries and issues. During this period, customers would have been unable to contact us by phone to discuss their bill, though were able to contact us via alternative channels such as email. We took steps to ensure customers were not negatively impacted by putting a hold on any cash collection activities due to late or non-payments in case customers were unable to discuss an issue that impacted their willingness or ability to pay. We also made customers aware of our decision and thanked them for their cooperation and understanding by putting a recorded message on the billing line, by updating our website and via social media.

In addition to this, we diverted other customer service resources to support customer contact handling in our contact centres. These are teams that are customer service skilled, however do not

generally directly interact with customers on a day-to-day basis as they are in support role. These teams included our billing and cash transaction processing teams, our customer service team members who are currently seconded to support with subject matter expertise in the design and build of our new billing engine known as Project Spring. The impact of diverting this resource was able to be mitigated and has not directly affected customers.

Once our revenue contact centre reopened for inbound calls, we deliberately increased the number of resources to ensure we could handle a peak in inbound calls from customers and answer calls within normal response times. We also increased resources on complaint handling to help process complaints relating to the impact of the bad weather and to ensure we continued to meet our customer commitment to respond within 10 working days.

Table 2: A comparison of customer contacts during the event to the average daily contact prior to event

Customer contact type	Daily average leading up to the event (19 - 25 February)	Peak during the event	Daily average the week after the event (12 – 19 March)
Customer telephone contacts recorded for Supply Interruption (No Water)	184	2,805 (6 March)	284
Customer telephone contacts recorded for Low Pressure	78	342 (6 March)	109
Report a leak web form	49	251 (8 March)	99 *(The week after the average reduced 67 per day, and then to 49 the week after)*
Social media customer contact	892	11,607 (5 March)	1081
Website hits	141,281	378,337 (6 March)	137,569
Customer contact handling resource	48 FTE	367 FTE (7 March)	45 FTE
Customer complaints	168	747 (5 March)	212

Source: Thames Water

Find and fix leakage activities

The scale of the event and its impact on our network and customers was not fully anticipated by the models we used to prepare for the cold weather.. In particular supply interruptions were significantly higher than we had predicted.

Given the scale of the supply interruptions, our first priority as a business was to restore supplies to customers. We therefore redirected our leakage teams to respond to mains bursts, prioritising the most significant ones. This meant our teams were not carrying out their usual duties identifying and fixing leaks on our supply side or the customers' supply side. As a result we expect to see an impact on leakage across our network.

Our initial estimate of the impact on leakage can be seen in the minimum night flow data we have provided in the excel tables accompanying this response document. These numbers show that minimum night flow increased significantly during the event and that while the minimum night flow reduced again after the peak period of the event, it was still approximately 70 Ml/d higher than in the period before the severe weather.

Question A4

What have you judged to be the cause of the issues, particularly water supply interruptions, for your customers (by customer type) during this period? What factors were relevant?

Our response

Between 26 February and 1 March 2018 we experienced extremely cold weather conditions, following which the temperatures started to rise. Temperatures reached above zero in London on the evening of the 2 March, and rose to 3°C by 2pm on the 3 March. As a result water demand rapidly increased due to the number of burst mains caused by the preceding extreme cold, and from customers' burst pipes thawing. Consequently, stored water levels in our network declined and, in some areas, customers started to experience supply interruptions and low pressure.

While we had prepared for the cold weather event[2], the models we used to estimate the likely impact of a weather event and inform our preparations for the event, significantly under-predicted the impact of the cold weather and subsequent thaw on our network and our customers' properties.

Despite our models having performed consistently in the past (within tolerances of ±5%) they failed to predict the full extent of the cold weather over the 3 - 4 March. We are still reviewing our models to understand precisely why they underestimated the impact of the weather on our network, our customers' pipes and water demand. Our initial findings suggest it may be as a result of a spring freeze-thaw being outside the parameters of our models.

While our preparations for the cold weather event helped mitigate the impact of the sudden increase in demand, they did not fully insulate all of our customers and between 3 - 9 March there were approximately 11,000 supply interruptions which lasted 12 hours or more. Had our models accurately predicted the scale and severity of the event, we would have increased our preparations for the cold weather event, including increasing our resources in the field and contact centres during the weekend of 3-4 March, and increasing the treated water in supply sooner.

We are continuing to examine the root causes of the failure of our models to forecast the impact of the weather pattern on bursts, and demand. We will focus on what we can do to improve the accuracy of these models, and whether there are lessons we can learn in how we prepare for and manage future events including how we respond to residual demand uncertainty. We are also reviewing the support and communications we provided to customers during the event to identify further ways we can improve our response to events.

[2] Please see our response to the questions in section B for more information on cold weather event preparations.

Section B: Planning and preparation

Question B1

How did your established processes for gathering intelligence and insight into the potential effects of forecast bad weather on your network help you to prepare for this event? Did they highlight any particular risks and what did you do to mitigate these? (e.g. network preparation, communications with customers, increased engineering or call centre resources) Did you share insights with other utilities/services?

Our response

In response to this question, we explain:

- What processes we have in place for gathering intelligence and insight into the potential impact of bad weather on our network;
- How these processes helped us prepare for this event;
- The risks we identified through preparing for the event and what we did to mitigate them; and
- Our approach to sharing insights with others.

Our intelligence gathering and insight processes

As explained in our response to question A1, we were managing the 2017/2018 winter as a level one event. Under our event management approach, we follow a formal process to gather information about weather forecasts, our network and supply position in order to assess the risk to the business on a weekly basis.

In terms of additional information we gather, we:

- Purchase detailed weather forecasts from the Met Office, which we feed into our models to assess the impact of the weather on both our water and wastewater network. On the water side, we use the forecasts in our supply demand predictor model to forecast the required output from our water treatment works and in our mains burst predictor model to understand how we might need to manage the network to reduce the risk of bursts and the level of resources we will need for repair activities.
- Monitor and receive Met Office and Environment Agency warnings about the risk of severe weather and flooding to understand the possible impact on our operational assets and teams.

We use this information and our operational information, to inform our assessment of the risk of adverse weather to our operations and customers, and to provide us with an early warning of how and when to prepare for adverse weather. Specifically, we:

- Carry out a weekly assessment of risk against a number of environmental, operational and customer trigger levels. The assessment is carried out by the Head of Systems Operations (Water) and the Waste Control Centre Manager, who will identify actions to mitigate or manage the risk. These weekly assessment meetings also track progress of previous actions.
- Provide twice daily updates to the business on the risk of adverse weather. These are normally provided at 7am and 7pm, and we increase these updates to meet the needs of the business when required.

How we used these processes to prepare for the severe weather and the risks we identified

We had been following these processes since 19 October 2017, when we initiated a Level 1 event for the 2017/2018 winter. As a result, these processes were well-embedded in our business and we were already proactively assessing the risk of weather on our business before the Met Office released its severe weather warnings on 26 February.

On the 22 February, our risk assessment identified a high probability of severe cold weather, icy conditions and snow between 9am on Friday 23 February and 12pm on Monday 26 February as a result of information from the Met Office. We assessed the potential impact of the incoming weather against a number of risk areas. Each of these areas has set trigger levels which inform the overall assessment of risk, the actions to take to mitigate the risk and the decision on when to escalate the event to the next level. As a result of the assessment on the 22 February, we escalated the event to Level 2 and each business area started implementing its winter event plans to ensure assets were available and prepared for the bad weather and that adequate resource plans were in place. We also moved from weekly to daily conference calls to assess and manage the risk.

The table below sets out the risk areas which we assessed as "amber" on 22 February. They were assessed as amber because of the predicted increase in mains bursts and water demand. None of these amber risks were considered unusual going into a cold weather event, and operational performance heading into the period was normal.

Table 3: Amber[3] risks identified on 22 February 2018 and our response to those risks

Area	Risk assessment	How we responded
Weather Forecast	A	We triggered plans to prepare the business so it could continue to operate during the adverse weather conditions. These plans included preparing operational sites for the bad weather, increasing contact centre and operational resources, and a number of activities to ensure staff could get into our offices and to our operational sites e.g. pre-ordering 4x4s, snow ploughs and accommodating some staff in nearby hotels. We also started to prepare for the potential impact on

[3] We also had a number of risk that we assessed as green which we have not included in table 3.

		customers. For example, we started preparing flood resilience equipment ready to support any large bursts/flooding.
Clean Water Network: Burst Prediction	A	Our burst main predictor showed the number of bursts would rise from normal levels at the start of the week (26 February) to serious/critical on the 2 and 3 March and we then needed to take action to target our workforce in this area. As a result we reallocated our resources to focus on finding and repairing emergency visible leaks.
System Operations: Permit to Work Volumes	A	Before any work can take place on our water network we issue a permit to work. If volumes of bursts increase so do the amount of permits we need to issue. Therefore this risk was assessed as amber, however no mitigating actions were required as our works permitting team is already prepared to deal with sudden increases in volumes.
System Operations: Supply/ Demand	A	Our models were forecasting increased demand, therefore we took steps to increase production, including: increasing reservoir storage to meet the forecast peak in demand (plus contingency headroom), and increasing production at large treatment works as well as ensuring other works were ready to be brought into supply if needed.
System Operations: Readiness Planning	A	We developed and implemented plans to increase storage capacity across our network.

Source: Risk assessment 22 February 2018

Throughout the event, we regularly reassessed the risk of the adverse weather to our customers, particularly as the weather forecasts continued to change between 22 February and the weekend of 3 – 4 March.

Customer Communications

Our data and insight meant we had a well-established plan for seasonal incidents and spikes in demand. This took the form of proactive customer engagement mechanisms and customer contact handling contingency resourcing options. We had already started our winter customer communications campaign and following the commencement of the Level 2 proactive winter event on 22 February we posted proactive tweets relating to winter preparations. We mostly used our digital channels (Twitter, Facebook and thameswater.co.uk) for this. During the event, we proactively engaged customers about the need to prepare for winter. We:

- Tweeted daily on social media to raise the profile for the need for homes and businesses to prepare for the risk of burst pipes. On 23 and 24 February we posted 24 proactive messages which received 52,888 and 67,288 Twitter impressions (i.e. the number of people who viewed the tweet) respectively.
- Proactively sent details on how to prepare for the snow to news and media outlets, which resulted in the Evening Standard (and others) using our advice and online material.

- Posted a video we had commissioned with ITV's Laura Tobin on the impact of cold weather on water pipes and information on what Thames Water was doing to tackle the freezing conditions[4].
- Spoke live on BBC Radio Berkshire on 1 March to talk customers through the steps of thawing out a frozen pipe, as well as pointing listeners to the helpful information on our website and social media channels. We also politely requested if customers who had billing queries could wait until the temperatures rise before calling.
- Provided news outlets with other updates on how we were responding to the bad weather.

Throughout the event, we regularly reassessed the risk of the adverse weather to our customers and tailored our communications messaging and frequency accordingly, particularly as the weather forecasts continued to change between 22 February and the weekend of 3 – 4 March.

In addition, to support the winter peak of potential customer demand we had already engaged an additional third party outsource provider, Business Process, to provide further (40 FTE) contingency support to supplement our own staff and existing partners. We were able to utilise this resource pool during the event. We also pre-briefed our partners about the likelihood of increased customer demand and they had in turn enacted their contingency measures which included using their own Rapid Deployment Teams consisting of multi skilled resources that can support various client partners.

Sharing insight with other organisations and utilities

Prior to and during the event we contacted retailers within our area to notify them of the potential impact of the weather on their customers and to let them know how we were responding.

We regularly work with Local Resilience Forums (LRFs) in our area. Thames Water covers ten LRFs from Gloucestershire in the West to Kent in the East. The LRFs are partnerships that bring together organisations which each have specific responsibilities for preparing for, and responding to, emergencies. Each LRF assesses the risk of emergency events and works together to reduce the likelihood or impact of those risks and, where risk cannot be eliminated, develops plans to respond to the risk. We work closely with the LRFs on the development of these plans, and any feedback is brought back into our business and included in our Event Management Arrangements and procedures. We engaged with them in the development of our event management arrangements.

In the event of adverse weather, a LRF's focus includes:

- Ensuring that in the event of an adverse weather incident (or a combination of weather types amounting to an adverse weather incident) the Partnership understands which

[4] https://www.standard.co.uk/news/london/thames-water-issues-warning-over-frozen-pipes-amid-subzero-temperatures-a3778916.html

agency is likely to lead according to the nature of the incident; what alerting system will be relevant; and what actions it should take as a multi-agency body.

- Identifying what communications with the public are likely to be necessary
- Providing information in respect of adverse weather events.
- Providing an overview of the likely impacts of each type of weather event.
- Providing specific advice as to certain consequences of a weather-related events

During our supply demand event, Swindon and Kent LRFs declared major incidents relating to the weather, while London, Surrey, and Thames Valley LRFs requested our attendance on regular conference calls about weather impacts from the period 26 February 2018 – 9 March 2018.

In addition, we had independent contact with the London Fire Brigade and the Met Police (which included London LRF). The remaining five LRFs in our area did not need support during the cold weather event.

Question B2

What impact, if any, did your preparation have on your ability to handle this event? What role did your Executive take in preparing for these severe events?

Our response

We have described in B1 how we used our intelligence gathering processes to prepare for the event, and provided some high-level information on how we prepared for the severe weather. In addition to these processes, the business is already set up so that we can respond to severe weather events.

Our response explains:

- How we are set up as a business to be able to respond to severe weather events;
- The role our Executive took preparing for these events; and
- How our embedded capability and preparation supported us in preparing for and responding to this event, and the impact it had on customers.

Our business's pre-existing capability to respond to severe events

Our overall resilience to severe winter impact, storm events, and flooding has increased in the last two years. For example we have:

- Improved the way that we monitor environmental risk through the creation of the Environmental Data Analyst (EDA) team who are tasked with monitoring weather 24 hours a day so we can both identify and react to any impending weather conditions.
- Increased the numbers of frontline staff providing direct customer service and, in the case of water networks, have increased our repair team numbers by 25% to 176 FTE since June 2017.
- Improved our customer incident management capability including creating a Customer Incident team to provide round the clock support to customers during events, and a team of volunteer 'ambassadors' to help deliver on the ground services to customers during events.
- Created a Logistics Management Centre (LMC) to provide resilience support to Thames Water's wholesale businesses. This has increased Thames Water's ability to manage the necessary logistics around an event, including how we divert business as usual resources to support major events. This has been a key factor in our ability to manage events successfully, including the recent freeze/thaw event.
- Created in-house assets and contingency stores, including 3 strategic stores and 12 smaller response hubs placed around our 6000 sq. mile operating area to maximise response times and to protect our customers.

In addition, our water and wastewater business units commenced planning for the 2017/18 winter period during the summer of 2017. To ensure we were prepared for severe weather events, we tested our winter plans in December 2017 using a scenario-based simulation exercise. The

scenario tested the management of a Level 4 event with a member of the Executive managing the overall exercise.

The role our Executive took preparing for these events

Our Executive was involved in the preparation and testing of our winter event plans including:

- The relevant Executive for each area overseeing the development of our winter event plans;
- The Managing Director of Wastewater reviewing the plans and our business readiness; and
- The Managing Director of Wastewater leading the testing of our winter event plans in December 2017.

These preparations and full Executive sponsorship meant we had already taken the decision to run the 2017/2018 winter as a level one event, with an event team comprised of representatives from around the business including customer service, communications, stakeholder engagement, the LMC, Business Resilience, Health and Safety as well as the operational units and our alliance partners.

Overall, the Executive members' involvement in the preparation of their individual business areas and the testing of plans helped to ensure the preparations were fit for purpose and ensured that insight from previous incidents had identified corrective action learning points or capability gaps.

How our capability supported us in responding to the Freeze-Thaw event

The capability set out above and developed over the past two years, allowed us to respond quickly as a business to the impending severe weather. Without these embedded functions, we would have been less well-placed to monitor and assess the impact of severe weather, and we would not have been able to implement mitigation plans, including the mitigation actions we identified in B1. However, as identified in our response to question A4, our models underestimated the impact of the weather on our network and water demand, and as a result our preparations alone were unable to fully mitigate the risk of the severe weather. This is a key learning point for us, and we are reviewing how our approach to preparing for severe weather events can address and mitigate the risk of our models underestimating the impact of severe weather.

Question B3

What emergency plans were in place and were they adequate to cope with the problems? Were those emergency plans appropriately enacted? If so, when?

Our response

Our Event Management Procedures cover our approach to emergency planning and set out our approach and processes for planning, responding to and managing any risk (direct or indirect), which compromises or threatens to compromise our ability to provide water and wastewater services to customers, regardless of the nature of the threat, the location, size or scale of impact. The procedures are developed and maintained as part of our legal obligations under the terms of the Security and Emergency Measures Direction (SEMD) 1998 and are audited annually by Defra.

We had been managing winter as a Level 1 event since 19 October 2017 and therefore were already following these procedures and had plans in place to manage the impact of severe weather. This included plans to escalate management of the event if the likelihood and impact of severe weather increased; including to an emergency level event.

We followed these event Management Procedures for the recent severe weather event and as our assessment of risk increased, we escalated the event accordingly, eventually reaching a Level 4 (emergency event) on 3 March. As a result, we put in action our emergency plans and notified Defra on the morning of Sunday 4 March of the emergency. From that point onwards until 8 March, we were liaising at least daily with Defra through conference calls with other companies and LRFs.

Our emergency plans covered the provision of alternative water supplies to our affected customers, as well as identifying vulnerable customers that needed additional support. While the emergency plan was followed and facilitated the delivery of alternative water supplies to affected customers in a short space of time, we have found areas of weakness in our emergency plans. We are still in the process of learning from the severe weather event, and based on our current understanding and assessment, we have identified the following areas of weakness in our emergency plans:

- Our ability to quickly and significantly increase operational and call centre resources during a weekend.
- The widespread scale of the incident meant the number and location of bottled water distribution points made it difficult for some customers to access free bottled water, in addition, we think our communications around the location of the distribution points were not as effective as they needed to be.
- Actual demand for alternative supplies was in excess of what our emergency plans normally cater for. In this event we procured over 10 times the volume of bottled water than we normally would.

The event also re-confirmed to us the coverage of our priority service register (PSR), which maintains details of vulnerable customers, is not comprehensive and we found gaps in it as we responded to supply interruptions. We were aware of the gap prior to the event and have plans in place to address it.

Question B4

What training have your staff had for responding to severe weather events, particularly freeze/thaw incidents?

Our response

Our response to B2 sets out how our business has developed the capability to prepare for- and respond to severe weather events. Training is a key part of building and maintaining this capability and over the last three years we have trained over 850 staff from across the business in our event management arrangements and procedures, including training on supply interruptions in difficult conditions similar to those experienced on freeze thaw, and customer care training during events.

In terms of other related training:

- Our Customer Incident team receives training on vulnerable customers, including how to support vulnerable customers during supply interruptions;
- Our Ambassador network, who are called to support the manning of bottled water stations, have received guidance relating to how to engage with and support customers during an event, as well as Health and Safety training and information about working near water.
- For our operational staff, severe weather is not trained as a stand-alone module and instead the impact of severe weather events is covered in our main training on operational activities. This is important to ensure our operational teams have the necessary insight to understand the impact on severe weather on our network and the impact of their actions during severe weather events on our customers.

Question B5

What did you learn from previous incident management events, including through working with other water companies, local / regional partners, emergency services or other service providers, and how is this reflected in your current processes?

Our response

Our event management procedures enable us to manage events effectively, and ensure that the circle of continuous improvement is complete through the event learning process. We have three key sources of incident learning – our own, from other water companies and from our partners and best practice. Our response to this question provides: a summary of our approach to learning from events and a short summary of some of the lessons we have learnt from previous events.

Incident management event learning overview

In accordance with our obligations under the Security and Emergency Measures Direction (SEMD), we carry out an event learning review on every Level 3 event. This is a formal process with recorded outputs and actions that are tracked to ensure we constantly improve the way we manage our response to events and ensure underlying issues within our business are addressed.

In addition, we work closely with the other water companies and our LRF partners to identify cross-industry learning and ensure that we update our processes to reflect best practice.

As a consequence, our corporate culture has shifted over the last few years so that our teams are engaged to identify and report events so risks can be managed at an earlier stage. This has resulted in a rise across all areas of the business for Level 1, 2 and 3 events (a description of event levels can be found in our response to A1). The increase in the higher risk events (Level 3) are shown in the table below (to 31 March 2018).

Table 4: Number of Level 3 events between 2015 and 2018

Area	2015/16	2016/17	2017/18
Water	38	54	66
Waste	23	74	119
Other	3	8	11

Source: Thames Water Event Tracker and Action Tracker 2017/18

Previous learning from 2013/2014 flooding

Following on from the increased reporting of events, there has also been a strong emphasis on updating and improving our processes based learning from events. Previous event learning from the 2013/2014 extreme flooding resulted in the establishment of the LMC, the Ambassadors network, as well as Customer Incident team. Event learning from the strategic trunk mains bursts in 2016 has resulted in continuous improvement commitments and these are set out in our Trunk Main Strategic Review document published in 2017. This includes improving our event management procedures and event response capability, customer care standards and communication. Further detail on each of these is described below.

Improving our logistics capability to respond to extreme events

Following the extreme flooding incident in 2013/14, we created a dedicated a LMC to provide a centre of excellence to support to Thames Water's wholesale businesses. The LMC was designed to increase Thames Water's resilience and agility to manage all aspects of logistics relating to operational incidents including how we redeploy and divert business as usual resources to support major customer impacting incidents. Part of the LMC's scope is to develop and test our operating strategy to increase our resilience by cross-skilling resources and assets to maximise our effectiveness, ensuring that collaboration of business areas was not impeded by commercial or geographical arrangements.

We have invested in significant training for the LMC teams, and in creating in-house assets and contingency stores. In the last two years the LMC has seen significant growth from 35 FTE to 112 FTE today with further growth plans well advanced for 2018/2019 and beyond. We now hold over £5m of resilience and support assets with three strategic stores and 12 smaller response hubs placed around our 6000 sq. mile operating area to maximise response times and to protect our customers.

As a result, we have the ability to rapidly divert key services to support our field capability, improving response times and reducing the reliance on our external supply chain. This dedicated and professional capability has been a key factor in our ability to manage this and other incidents including trunk main bursts.

Ambassador network and Customer Incident team

The Ambassador network was also created as a result of the 2013/2014 extreme flooding; this growing programme has enabled us to train and deploy non-operational staff, to support our customers in a range of incidents. An ambassador support pack provides information to the Ambassador network on how to assist customers during incidents. The Customer incident team was more recently created in June 2017 to provided dedicated face to face support to customers 24/7 during incidents, with an explicit focus on proactively contacting vulnerable customers to provide support and bottled water until supplies are restored - as fully set out in our response to B4.

Event learning from 2016 trunk mains bursts

The event learning from our trunk mains bursts has resulted in a number of commitments as we work to continually improve our incident management capability. The key commitments from the trunk mains event learning process are described below.

Establishing a dedicated out of hours response capability

To improve our ability to respond to water main incidents we are enhancing our 24/7 field capability. We have already recruited additional field technicians and are finalising plans to enhance this further. This will enable us to respond more quickly to bursts on our high risk mains allowing us to isolate and contain flood waters. It should be noted that while we are recruiting these additional

resources over the coming months, it will take 18 months for this team to obtain the level of maturity to operate these complex assets effectively.

Improving customer care support and effectiveness of communication

As a result of our experience during the trunk main bursts in 2016/17, we have improved our approach to customer communications and we now have a Customer Communications Playbook that provides the Customer Incident Management team with clear standard messaging to support customer engagement across all channels as part of our incident structure. The customer incident team has clear accountability for liaising with operations teams to understand the customer impact and to ensure that customer messages are disseminated across all channels within 15 minutes and updated regularly.

We use a number of methods to interact and communicate with our customers in order to keep them regularly informed. These include our IVR platform where customers calling into us are asked to enter their postcode (if we are unable to match it from the number they are calling from) and they automatically get any update regarding an issue in their area, as well as proactive SMS updates where customers have registered for them on our website.

We have also invested in a new social media platform (having outgrown our previous one), which during this event enabled us to deploy more customer care representatives to respond to customer tweets, as well as to identify and prioritise those from vulnerable customers. We were also able to listen to customer conversations about Thames Water on social media via our Brandwatch tool ensuring we can identify and respond rapidly to customer insight.

Section C: Incident Response

Question C1

Provide details of your established processes for responding to issues during severe weather events, particularly late winter freeze/thaw incidents (e.g. operational, governance, communications, working arrangements with other authorities through local / regional partnerships). Were these processes effective during this incident? In your response, make clear the role of your Executive in any decision making within these processes.

Our response

Our established processes for responding to issues during severe weather events

As mentioned in our response to question B3, our Event Management Procedures set our approach and processes for planning, responding to and managing any risk, direct or indirect, which compromises or threatens to compromise our ability to provide water and wastewater services to customers, regardless of the nature of the threat, the location, size or scale of impact. The procedures are developed and maintained as part of our legal obligations under the terms of the Security and Emergency Measures Direction (SEMD) 1998 and are audited annually by Defra.

The Event Management Procedures consist of:

1. Event Management Arrangements
2. Function and Hazard Briefs
3. Event Management Training
4. Internal event management compliance audits
5. Internal Event Learning Process

Under these procedures, we follow a defined control framework to make sure we are able to adopt a standard approach to all events, ensuring that our response to every event is fit for purpose. Under this framework, each event is risk assessed and an assigned a level from one to four depending on the risk or potential risk of the occurrence. Please see our response to question B1 for insight into the information we use to inform this risk assessment, and the areas of risk we assess.

Depending on the overall risk assessment, we categorise the event at one of four levels (see below). Over the duration of the event, we continually reassess risk and escalate and decrease the level of event accordingly. The event levels are:

- Level 1 - An operational occurrence or minor localised business disruption (managed locally at an operational/working level)
- Level 2 - An event that is localised / limited in scope and contained (managed by a Thames Water manager)

- Level 3 - An unstable, severe or uncontained event (managed by a Thames Water senior manager)
- Level 4 - Emergency / Critical business disruption (managed by a Thames Water Executive Director of a business area e.g. MD of Water)

Each event has a comprehensive risk assessment to:

- Identify all actual and potential risks and the impact of them on customer service;
- Assess likelihood, impact and urgency;
- Identify risk mitigation and contingencies;
- Identify key indicators which will show any changes to risk during the event; and
- Record decision making.

These risk assessments inform how we respond before and during the event, and we regularly review the event situation using this framework so we can ensure our response continues to be fit for purpose and addresses all risks.

Our event management procedures also set out the control and governance of the event, including the level of management involvement. As a result it provides a clear roles and responsibilities for each business area, a clear chain of command for management of the overall event and requires the Executive to take over the control of the event as the severity of it increases.

Table 5: Level of senior management control during the severe weather event

Date	Level of event	Event Controller
19 October 2017 – 22 February 2018	Level 1	Head of System Operations
22 February 2018 – 26 February 2018	Level 2	Head of System Operations
26 February 2018 – 3 March 2018	Level 3	Senior Manager - Head of Waste Water Control
3 March 2018 – 12 March 2018	Level 4	MD of Wastewater and MD of Water [5]

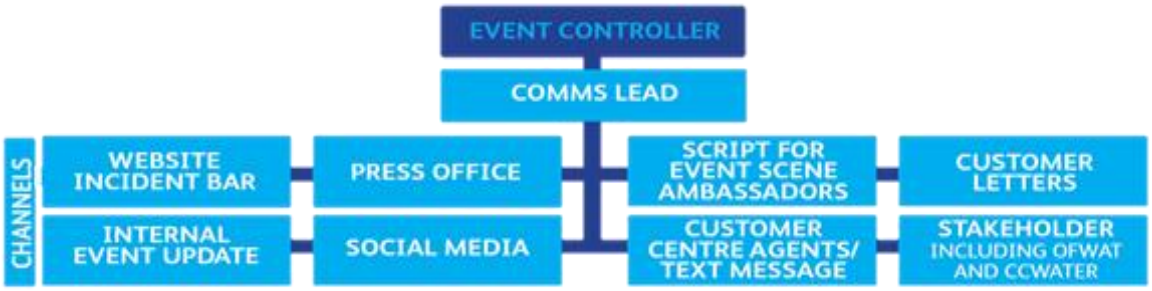
Source: Thames Water J5 Logging system

From the beginning of the Level 1 event on 19 October 2017, the Executive received weekly status updates, which increased to daily reporting as the event increased to a Level 3 event. During this period Executive members provided advice and guidance on our response. Our CEO also received regular verbal updates. Once the event was escalated to a Level 4 event, an Executive Director provided took direct ownership and control.

The procedures also include guidance on managing communications during an event, and the governance structure for communications is shown in Figure 1.

[5] During the peak period of our event, we rotated our Event Controller every 12 hours

Figure 1: Structure of events communications team



The communications lead is responsible for coordination of our internal and external messaging throughout the event and sits within the core event team reporting to the Event Controller. We operated this structure up to 3 March and then from 3 March we changed to coordinate all the separate communication workstreams directly through the core event team. We did this to improve contact between the above communications teams and other parts of the event team for example, the teams who had visibility of our operational activity on our network. This allowed us to respond better to customers' queries about individual supply interruptions.

The effectiveness of these processes during the incident

Our management of the 2017/18 winter followed our established processes and from 19 October 2017 we had been proactively managing the risk of severe weather as a Level 1 event. As a result, our creation of winter plans for our water and wastewater businesses, including: creation of trigger levels to assess risk against; regular assessment against trigger levels; and implementation of pre-defined corrective actions was in place during both the course of the winter period

The processes were effective in monitoring the risk of severe weather and escalating the management of the risk accordingly.. For example, we escalated the event to level 2 on 22 February when weather forecasts predicted icy and cold conditions, and facilitated the escalation of our response as the impact of the cold weather on our network and customers became clear. In particular, these procedures enabled us to take a controlled response to the event as it escalated, ensuring we understood the priority issues and were responding to them.

While we are still reviewing the effectiveness of our event management, we think overall our procedures were effective in ensuring we were prepared for cold weather and could respond quickly when we realised the impact on our customers was far greater than we predicted. However, in some areas, our procedures may not have been as effective as they could have been, for example we think our approach to customer communications could have been stronger, in particular communications to customers about supply interruptions in their area or the provision of alternative water resources. We are reviewing our approach to communications and how we can provide customers with better information during events.

Question C2

For this incident, please describe how your company went about deploying the resources required to respond to the incident. In responding, please detail the scale of resource deployed and from which parts of the business and/or external resources (e.g. supply chain, local / regional partners, business retailers) they were drawn.

Our Response

In B2 we described how as a business we have increased our overall capability to prepare and respond to events, particularly those that have a significant impact on our customers. In our response to this question, C2, we describe how we managed and deployed the required resources to support us during the event, and where we were able to draw them from.

In the immediate run up to the event, we rested a number of resources ahead of the first snowfall on the 27 February. This gave us the capacity to push up the number of resource hours immediately following the snow. This was particularly effective in our water treatment areas and supported our ability to increase water production across London within a very short timeframe.

Between 3 March and 12 March, we operated the event 24-hours a day with fully manned event team on a 12 hour shift arrangement. For the team we drew on senior managers and Executive members to manage the event in relation to:

- our overall response to the event and coordination of our operations management centre;
- coordination of on the ground support to customers;
- media coverage and communications; and
- customer service.

Detailed resource planning was managed through our several planning and dispatch teams who also operated around the clock, and overall responsibility for managing the resource plan priorities sat with the relevant business leads within the incident team, for example, the retail lead was responsible for the resource plan priorities for customer contacts.

Our priorities focussed on identifying and supporting customers out of supply, getting customers back into supply and reducing the risk of further interruptions. Particularly in the period following 3 March, as supply interruptions increased, we focused our leak detection and repair activities in areas either where supply interruptions had been caused by diffuse leaks or we considered there was supply risk that could be mitigated by repair activities. This approach enabled us to effectively prioritise our activities to ensure we were focused on responding to customer need as quickly and effectively as possible.

During this incident, we were generally able to draw on resources from within our organisation and our service providers, and our contingency plans ensured that key resources were available and able to get to our offices ahead of the snow period, using 4x4 vehicles and hotels to make sure staff could get to work.

In terms of additional resources deployed during the event, specifically we:

- Increased our call centre resources by closing inbound calls to our billing contact centre and utilising our service provider partners Capita and Wipro. The average number of

weekday resources in the period prior to the snow Monday 19 February to Friday 23 was 57 FTE. In the week commencing 5 March, average weekday resources were 231, with our peak resources reaching 367 call centre agents on Wednesday 7 March. We were able to redeploy resources from our back office operational teams as well as customer service subject matter experts deployed on project or business improvement work as set out in our response to A3.

- Increased the numbers of staff dealing with social media contacts. During the main peaks of weekday operations we operate with four dedicated FTE resources. During the event we supported this team with a further 15 FTE.
- Increased the size of the team proactively contacting priority customers from 15 to 45, and in the Wandsworth area we also worked with Age UK to check vulnerable customers by phone.
- Deployed Ambassadors to man bottled water stations across London. At the peak we had five Ambassadors at eight bottled water stations across London. We also used our waste contractors to staff bottled water stations overnight.
- Diverted 23 of our metering staff to assist in prioritising work by calling customers to determine the cause of the supply interruption (i.e. whether it was customer side versus supply side). This helped the triaging of a large volume of customer contacts.
- Increased operational gang numbers in response to the rise in mains bursts, and from Monday 5 March boosted our Network Service Technicians resource by circa 10%, and repair and maintenance teams by circa 20%. This was achieved through the cancellation of training and leave, and providing enhanced overtime payments. We were also able to bring in additional teams to support them, for example, we used 15 repair and maintenance teams from our mains replacement programme to support our repair activities, as well as 4TE from our supply chain and up to 15 strategic field engineers.
- Deployed 16 plumbers from our service providers to assist our teams dealing with airlocks in south London. In normal business as usual operations this is not an area for which we usually need to resource.

In addition to the above, we also increased our LMC related assets during the event. Table 6 provides examples of the scale of the increase.

Table 6: Comparison of actual LMC resources to our winter preparation resources and business as usual requirements

General LMC Asset / Resource	Business as usual arrangements in place to supply following (Daily)	Additional scaling to supply following weather alert 23 February (Daily)	Actual experienced between 28 February – 12 March
4x4 Vehicles	105	125	150
Gritting Teams	10 teams	16 teams	30 teams
Clean Tankers	1	4	6
Bottled Water Stock	300	400	3166
Bottled Water Deployment Ability (pallets)	300	400	400 -600
Major bottled water stations created (24/7)	2	4	8
HGV Support Vehicles	10	25	40
LMC Desk Team	3	6	10

Additional LMC support Hours available over business as usual operation	100	>500 available	>500

Source: Thames Water

Question C3

Provide details of how your company assessed the operational implications and prioritised its responses during the incident period.

Our Response

Please see our responses to B1 and C1 for information on how we assessed the operational implications for our water business ahead of 3 March and escalated the management of the event accordingly. Our response to this question focusses on how we assessed the operational implications during the key period of the event (3 March to 9 March) and how we prioritised our responses during the incident period.

Our assessment of risk during this period continued to follow the event structure that was already in place, however the event changed in nature from a cold weather event to a supply demand event. On 4 March, we formally defined our strategic objectives for the supply demand event and an Executive Owner and Senior Lead was assigned responsibility for delivery of each of the objectives, including prioritisation of activity within each of the strategic areas.

Table 7 below shows our strategic objectives and the members of the Executive involved.

Table 7: Supply Demand Event Strategic Responsibilities and Owners

Strategic Objectives	Exec Owner	Senior Lead
Strategic Objective A : Event Leadership	Lawrence Gosden	Event Controller
Strategic Objective B : Look after customers out of supply	Steve Spencer	Jill Jones / Helen Bailey
Strategic Objective C : Get customers back into supply	Lawrence Gosden	Tim McMahon
Strategic Objective D : Reduce risk of further interruptions	Sarah McMath	Gareth Parry
Strategic Objective E : Manage stakeholders and media	Richard Aylard	Stuart White
Strategic Objective F : Recover customer confidence and compensate	Nick Fincham	Jill Jones

Source: Thames Water

Overall prioritisation of activities and resources was determined by the Event Controller through risk assessments on event calls held regularly through the day. These calls enabled us to effectively and quickly prioritise our actions and resources across all our functional a number of areas. For example, they enabled us to prioritise:

- Rapidly increasing water production to meet demand, and implementing a further plan to maximise all output from all sites in both London and Thames Valley.
- Balancing reservoir levels through remote management of pumps.
- Responding to emerging issues such as pump trips or supply areas where we had known leaks.
- Triaging information from customer contacts to prioritise work.
- Providing alternative supplies to customers and identifying priority customers.

Table 8 below shows the functional areas covered in the event calls and the scope of each area.

Table 8: Scope of event call

Functional area	Scope of coverage
Event control	Confirmation of key leads, risk assessment, agreeing overall strategy and sign off on all communications
Water production	Current and forecasted reservoir levels, supply and demand profiles, individual site outputs, current or emerging risks (plus any known mitigation), and approach to risk management across the London and Thames Valley areas
Water Systemisation	Daily and live risk assessments, plant availability, capacity and capability planning, outages, management of technology and associated risks (relating to system instrumentation and alarm management), import and export management, water transfer and movement options across London and Thames Valley.
Water Network	Live data on bursts, priority leaks, leakage and no water situation. Also covered operational resources and current and forward planning for workloads
Customer	Current and predicted customer contact volumes (including social media contacts, written and e-forms, complaints), call waiting times, insight on drivers for contact, numbers of agents available and planned, contingency options for support, impact on other services (e.g. billing contacts and operations). Status of vulnerable customer support -volumes of customers and sensitive sites and status
Logistics	Tankers and bottled water locations, stock available and planned, maintaining stock on sites, resource planning for people and plant 24/7 coverage
Communication (including social and external media, internal and external communications)	Current impact across all media channels including, press, social media, interviews, statements updates, consistent messages across all platforms
Stakeholder	Keeping MPs, Councillors and regulators informed and updated, maintaining open channels of communications to all key stakeholders
Water Quality	Ensuring water quality requirements are met across all water activities in line with regulations, maintaining DWI communications and updates
Resilience	Current activity across LRF(s), update on any TCG / SCG sitting across the regions, maintaining Defra communications and updates.

Source: Thames Water

Question C4

What challenges/barriers did your company face in resolving problems that customers experienced? How did you overcome them?

Our response

The challenges we faced in resolving customer problems were associated with the following issues:

- Increased supply demand;
- Increased volume of contacts;
- Increased contact via social media;
- Availability of bottled water;
- Impact of airlocks;
- Access to additional resources;
- Impact of snow.

In response to this question, we describe how we faced and overcame each of these challenges.

Supply Demand

From 3 March we saw a sudden rise in demand across our region, due to a significant increase in supply side and customer side bursts. We have included data on our supply and demand position in the attached data tables, and the numbers show the extent and speed at which we increased water supply to meet the sudden increase in demand and to ensure customers received water.

Our modelling had predicted an increase in demand. However on the morning of 3 March, we realised actual demand was significantly higher than our modelling had predicted. We immediately started increasing production at all major works across our region, carefully managing supply and storage across our network to focus on keeping customers in supply.

The week prior to 3 March we had been managing production in line with our forecasts and, as a contingency, had prepared treatment works to be able to produce additional supplies, to ensure that we had the ability to rapidly increase production in case of emergency. We had been running our Beckton Desalination plant and Walton water treatment works to waste in this period to ensure they were available when we needed them (i.e. the plant and works were ticking over but not producing water for supply). On 3 March, as well as increasing overall output across our works, we made the decision to bring these two sites into supply to support our production. The desalination plant started at 8pm on 3 March, while Walton treatment works started at 3am on 4 March.

Our ability to rapidly respond to increased demand played a significant part in minimising the impact on customers. Without this ability the scale of supply interruptions would have been wider.

Volume of contacts

The extent and sudden impact of supply interruptions meant the volume and complexity of customer contacts across multiple channels far exceeded our expectations and immediate resource plans. In fact the volume of customer contacts received was unprecedented in our management information.

This significantly challenged our ability to answer 100% of calls, limiting our opportunity to speak with each customer and identify whether their issue was on their customer side or on our network.

As part of pre-winter contingency planning we had a number of options and mechanisms in place to divert customer contact handling resources to support exceptional operational incidents. We had also proactively prepared website messaging and automatic interactive voice response (IVR) messages, to provide relevant information to customers so they could self-help where appropriate. These plans meant that when we saw an extraordinary increase in contacts on 27 February (80% increase on average business as usual contact volume) and 28 February (141% increase on average business as usual contact volume) we put these contingency plans in place. This included diverting resources from our billing call centre to support wholesale calls. This meant customers who experienced supply interruptions were still able to contact us by phone despite the significant increase in call volumes.

One of the specific challenges and learnings from the deployment of billing call centre agents was that while they were trained to handle calls relating to supply interruptions, they did not have the relevant experience and skills to directly access core wholesale systems and create work for field staff. Our established contingency process of support agents logging incidents via an electronic form, was not effective in the way it has been to date. This has been an important learning point as in this specific event the majority of incidents needed to be further triaged and verified. The challenge was being able to distinguish a customer side issue from a network one and advise the customer accordingly. In order to address this and prioritise field work we used our metering teams. Using their skills and experience they called customers back to perform further in depth diagnostics offering personalised advice to customers to resolve their internal issues. As a result, by 2 March we had cancelled over 75% of work, ensuring that our field resource remained targeted on priority jobs. We were able to continue this process throughout the peak period when dealing with the rapid freeze thaw issues.

Social media

Similarly to the increases in customer contacts described above, from 2 March we received an exceptionally high numbers of contacts via social media (2778 on 2 March versus a business as usual daily average of 892) peaking at 11,607 on 5 March. We have described in our response to C2 how we increased resources in this area to help respond to customers and to provide them with the information they needed about the interruption.

We used social media to keep customers informed about where we had supply issues and what we were doing to resolve them. This meant they did not need to call us, helping to reduce call volumes into our contact centre. We also used social media to help us identify where we should prioritise work.. Using our social media tool we were able to proactively search messages to identify vulnerable customers so we could directly contact them to arrange support. We also used customer location information from social media alongside our network visualisation tools to identify customer hotspots. We relocated members of our social media team to sit alongside control centre staff in order to do this, providing direct access to network and supply information. This approach was deliberately different from our business as usual process which is to investigate individual customer messages and respond. We did this with the specific objective of prioritising our operational resources to identify and support vulnerable customers and effectively targeting our field resource deployment. Due to the extraordinary volumes we were unable to respond to each and

every individual message and so used the channel in this way to broadcast and identify customer hot spot areas.

Bottled water

We faced several challenges in relation to the provision of bottled water:

- Our key framework suppliers and distributors of bottled water were stretched nationally, due to the fact that they supply water to many other water companies. This could have put at risk our ability to supply customers with alternative water supplies.
- To ensure we could meet customers' needs, we put two new arrangements in place with Decante (to supply bottled water) and Transtex (courier company to deliver bottled water to priority customers) that we then combined with our own resources and vehicle fleet from our LMC. This meant that within six hours on Sunday 4 March we had 706 pallets available for distribution. The size and scale of this operation doubled again by Monday 5 March.
- We had a limited number of bottled water stations to distribute water from. While we were able to increase the number of distribution points from two to eight during the event, we know some customers still struggled to access our stations and resorted to purchasing water from local shops. We are reviewing our plans for distributing water in events so that we can better support our customers during supply interruptions.

Airlocks

As we identified in our response to A4, we experienced issues from internal airlocks as a result of reservoirs running low. Despite restoring supply to London, two areas continued to experience significant supply interruptions as a result of internal airlocks in both our network and customers' pipes. While we were prepared for airlocks in our system, we were less prepared for airlocks in customers' pipes and we needed to quickly mobilise additional plumbing resources in the relevant areas to find and clear the airlocks.

Access to additional resources on 3 and 4 March

As described in our response to A4, the actual impact of the freeze-thaw event on mains bursts and demand exceeded our predictions. While we had put plans in place to uplift resources into the weekend from our usual weekend numbers, the numbers of front line operatives (repair gangs and technicians) that were needed to manage the impact of the freeze thaw could not fully be met with our enhanced weekend resource. This limited the number of mains bursts we could respond to over the weekend, and is likely to have impacted the extent of the supply interruptions customers experienced.

This has been a key learning point for us, as a result of which we are reviewing our weekend resource requirements for events.

Impact of snow

From 22 February we prepared for the impact of snow on our region to ensure we could continue providing services to customers. Over the week, the weather forecast for snow continued to worsen and there was a risk that key staff might not be able to get to customers, our offices, and operational sites.

Our approach was to ensure that key staff within the event control, contact centre, and planning teams were all able to support frontline operational activities. We therefore tracked down every 4x4 vehicle in the company and gave priority access to these vehicles to key front line staff. Through the process, we identified the need for further vehicles and hired in total an additional 50 4x4 vehicles.
We also prepared our operational sites by checking asset availability, fuel stocks and generators, and by ensuring that resource plans had been adjusted to deal with the snow fall. We had put plans in place to ensure that our key operational headquarters activities were also managed. Critical control staff were put up in hotels from the night of 26 February and we also arranged for 4x4s to be taken home to allow transport of other staff into work.

As a result of these actions we were able to ensure key staff were available throughout the period 27 February to 2 March to manage the event and to respond to customers' issues.

Question C5

Provide details of how your company identified customers in vulnerable circumstances before, during and after the incident. What support was offered to these customers and how was this delivered?

Our response

The way we identify and support customers in vulnerable circumstances is both proactive and reactive. This reflects the reality that our customers' needs change over time and we need to be responsive to changes in their circumstances. During incidents we proactively identify and offer support to vulnerable customers who are on our PSR. Customers can contact us to request their details are added to our PSR, and we also identify and proactively update additional priority customers during incidents.

Identifying vulnerable customers and status of support

During incidents (such as supply interruptions) we have a well-established process where our control teams, as a priority, carry out property traces using our mapping system (GIS). This identifies affected areas, and we then cross-reference these postcodes against our PSR to produce a list of affected priority customers. These are customers who may need help accessing the support we are putting in place for our other customers. We proactively and personally contact every customer on the list (in priority order) to confirm whether they are affected and what additional support they need. To support the effectiveness of this process and in recognition of the diversity in our region, our call centre staff have access to a language line service that provides access to a translator should they need it.

In the case of the freeze-thaw event, on the night of 4 March, 1,045 customer properties were identified using the above approach. We contacted these customers in priority order. For example, we identified that six customers on dialysis might be among the affected customers. We therefore made extensive attempts to contact these customers. Three confirmed a loss of supply and we were able to provide them with bottled water as well as advice relating to the supply interruption. At the peak we had 45 employees making calls to these customers and by end of 6 March we had attempted contact with all of them. The results of this were that we spoke with 71% of customers directly and left messages for 29% where messaging services existed. We made multiple attempts to contact customers where we hadn't been able to speak with. During this exercise we identified 32 customers were out of supply or had very low pressure at the time of contact and we made sure alternative water was delivered to them for the duration of the incident.

For reactive identification of vulnerable customers, our contact centre staff have been trained to recognise customers with additional needs and vulnerabilities when they contact irrespective of channel. In these scenarios the customer details are passed to our Customer Incident team to instigate a face to face visit for example in this case to deliver bottled water. During larger widespread incidents such as this, the LMC and our Thames Water Ambassadors assist with bottled water deliveries. 240 requests for bottled water came through this route and bottled water was delivered to all customers who needed it. We continued to contact priority customers during the event to confirm when their supplies were reinstated.

As an industry we have recognised our PSR is not comprehensive when compared to other industries, (for example the energy industry), which is why we are already engaged in an industry wide collaboration project to address this. We therefore took the decision on Tuesday 6 March to engage with other agencies to increase our reach to other vulnerable customers. We contacted Wandsworth Age UK, who supported us by contacting their customers and checking if they were in need of support. As a result, we identified 15 additional vulnerable customers who did not have a water supply and arranged for bottled water to be delivered to them. We were also supported by local councillors, who helped identify vulnerable customers for specific bottled water deliveries. Working with third party organisations in this way was a different approach however proved very useful and we are now urgently investigating how we formalise these partner relationships.

Due to the prolonged impact of the incident in some scenarios one of the learning points was our ability to reporting and track progress in providing ongoing support for these customers. As a result we have created a 'How to guide', established a new mechanism for filtering customers by District Metering Area (DMA), added enhancements to our Sharepoint App to give further visibility of customers to our representatives directly interacting with these customers face to face.

In terms of sensitive non-household customers, we identified several hospitals, care homes and schools that were affected by supply interruptions. We set out below how we supported these customers during the event:

Hospitals

St. George's Hospital Mental Health Ward, London was affected from the evening of 4 March (the remainder of St George's Hospital was not affected). We provided ongoing tanker support to the hospital to refill tanks until supply was restored overnight. Tanker support remained available for the following days, ensuring that no further loss of supply was experienced. Ambassadors in direct communication with the incident Team were stationed at the Mental Health Ward to ensure fast effective communication and visible support.

Hendon Hospital, London was also affected by a loss of mains supply and a tanker was sent to site to provide an alternative source of supply. However this was not required as the hospital internal tank provided sufficient storage until the main was isolated and mains supply restored.

Care Homes

Five care homes and one hospice were also affected by loss of supply and we provided them with bottled water during the interruption.

Schools

As a result of supply interruptions, eight schools were closed. We recognise the disruption the event had on these schools and, as part of our compensation package we are making a donation to each school.

Section D: Communication and Support

Question D1

How effective were your communication processes before, during and after this incident for each of the below:

a. Customers? (residential and business);

b. Customers in vulnerable circumstances and business customers for whom a water supply is critical (e.g. hospitals, schools)?;

c. Water retail businesses?; and

d. Wider stakeholders? (e.g. local authorities, other agencies, Government, Ofwat)

Our response

In our response to this question we explain:

- Our usual approach to communication during an event;
- The communication challenges we faced during the recent event; and
- The effectiveness of our communications with retailers and wider stakeholders

Our approach to communication during an event

During events, our communications processes are targeted at providing relevant and timely information to three key audiences

1. Customers - by segment including residential and business customers, vulnerable/sensitive customers, and retailers;
2. Internal communications – employees – those engaged in directly supporting customers and the wider business; and
3. Wider Stakeholders

Our communications approach and success measures are focused on keeping customers and stakeholders informed about:

1. Our awareness of the issue, including its scale and impact on customers;
2. Our response, i.e. providing reassurance that we are responding and an estimate of how long it might take to resolve; and
3. How and where customers can get extra help and support in the meantime e.g. alternative water supplies and vulnerable customers

Our communication to all three audiences are executed via the following channels:

1. Digital: website and social media
2. Telephone: primarily inbound customer calls, which during the event included households and non-households, and in the case of vulnerable customers outbound calls
3. Face to face contact: carried out by our customer reps in the case of vulnerable customers or visible community presence
4. Outbound SMS
5. Email
6. Written correspondence
7. Direct personal updates to key stakeholders
8. Engagement via the media

We normally assess the effectiveness of these channels through customers' propensity to contact us and complain, and also our CSAT survey. Our reason being that if we are proactively providing relevant, insightful and timely information then a significant segment of our customer base both residential and business can self-serve information and updates and won't contact us. Equally if the communication and information to our internal employees is relevant and timely they can share this with customers directly, contacting them to reassure them as to the status of the incident, preventing further 'chase' contact and complaints. One trend we have observed in improving our response to incidents, particularly trunk main bursts, is that the tendency for customers to contact us reduces in cases where we have strong proactive outbound communication with customers.

During an event, we also have processes in place to contact retailers to notify them about the operational issues we are facing the impact on their customers.

The challenges we faced during the recent weather event

During the recent event, the challenge (and learning) was around the widespread scale of the supply interruption and our ability to quickly diagnose whether the cause of the issue was our network or the customer supply side. This made is very challenging to provide proactive updates to keep customers, stakeholders and retailers informed as we worked in the background to determine the root cause of geographic hotspots, where customers were reporting issues to enable us to determine the specific update. For example, in the three key geographical areas most significantly affected, the root cause of the supply interruptions (and the duration of the interruption) was different. Being able to establish and communicate this to the public in real time was a new challenge and learning point.

The result was that our communication was not as effective as in other incidents as we were dealing with multiple incidents on the network. We simply did not have the insight we needed to effectively communicate root cause and timescales. In addition we have been unable to assess the effectiveness of communication via our usual KPIs since the volume of contact was so unprecedented and the widespread nature of the supply interruption so wide that there is not a

robust benchmark for propensity to contact or complain. We also took the decision to turn off our transactional CSAT survey considering it inappropriate to ask customers to take time to rate the level of service they had received in the context of the disruption they were enduring.

Our response and approach to this was to therefore focus on maintaining consistent messaging on five key messages/communication themes in terms of how and where customers could access extra help and support during the event. We focused on the following messages in our communications:

1. Urging customers to check their supply side for leaks
2. Reminding customers to use water wisely in light of the demand levels
3. Asking customers to only contact us if absolutely necessary so we could prioritise support for vulnerable customers to raise awareness of this segment
4. Providing updates on the availability of alternative water supply updates
5. Reassuring customers of the level of activity going on by our field teams to get them back into supply and provide some insight as to the challenges we were facing operationally.

We believe this was effective in that we did see customer behaviour change as a result as:

- Demand started to drop as customers understood and took responsibility for fixing customer supply side issues and took steps to reduce their consumption.
- We were able to keep all sensitive sites and customers in supply where they were already on or added to our PSR.
- The volume of bottled water distributed increased.
- The number of hits on our website and social media channels increased.

Effectiveness of our communication with retailers and wider stakeholders

We believe that notwithstanding the points above relating to scale of the event and the challenges in being able to provide detailed specific updates for each postcode area, our communication with retailers and wider stakeholders was effective in keeping them informed of the scale of the incident and our response**.** For example as the event escalated, our Local and Regional Government Liaison (LRGL) team provided key stakeholders with information on the extent of the event, how we were responding to restore supplies, and bottled water locations in north and south London. We continued to provide these updates to interested MPs and councillors during the event, and engaged with councillors on the location of bottled water stations and identification of vulnerable customers who needed bottled water deliveries.

As communications through the LRGL team increased, we received new reports of areas out of supply and previously unreported leaks and bursts being flagged. The SW16, SW17 and SW18 areas were the predominant sources of increased contact, and our LRLG team reported all new locations to the event team. Where there were significant issues, we arranged for direct contact with key staff, for example, on 7 March a burst on a 30" main in Tooting had a significant impact on customers in the area, we made arrangements made for a direct call between the local MP, Dr Rosina Khan and our Director of External Affairs. As water returned to the network, the decision

was made to stand down bottled water stations overnight. This was communicated to MPs and councillors ahead of being posted on our website.

With regards to retailers, we contacted them to let them know what was happening and we are aware that retailers like Castle Water were ready to support us with their 24 hour support team. Apart from notifying retailers about the event, we did not contact the retailers to ask for customer information. In some cases, Non-Household customers provide us with emergency contact details, and in other cases we identified non-households on the ground and through calls to our contact centre. However, had we been able to directly access contact details ourselves then we most likely we would have used the information to contact some customers directly.

Question D2

What channels did you use for communication with customers and key stakeholders before, during and after the event? (e.g. local, regional or national news media, social media, e-mail, SMS, hard copy letter) What were your key messages at each stage? Please provide examples of your communications material with your submission.

Our response

Our communication processes are executed via the following channels:

1. Digital: website and social media
2. Telephone: primarily inbound customer calls, which during the event included households and non-households, and in the case of vulnerable customers outbound calls
3. Face to face contact: executed by our customer reps in the case of vulnerable customers or visible community presence
4. Outbound SMS
5. Email
6. Written correspondence
7. Direct personal updates to key stakeholders
8. Engagement via the media

Before the peak period of the event (prior to 3 March)

We initiated our winter customer communications campaign following our assessment that our area was likely to be affected by cold and icy weather and our escalation to a level two event. We mainly used our digital channels to publicise the campaign and in particular we proactively engaged customers about the need to prepare for winter, including:

- Daily tweets on social media to raise the profile for the need for homes and businesses to prepare for the risk of burst pipes.
- Proactively sending details on how to prepare for the snow to news and media outlets, which resulted in the Evening Standard (and others) using our advice and online material.
- Posting a video we had commissioned with ITV's Laura Tobin on the impact of cold weather on water pipes and information on what Thames Water was doing to tackle the freezing conditions, which can be viewed.
- Speaking live on BBC Radio Berkshire on 1 March to talk customers through the steps of thawing out a frozen pipe, as well as pointing listeners to the helpful information on our website and social media channels. We also politely requested if customers who had billing queries could wait until the temperatures rise before calling.
- Provided news outlets with other updates on how we were responding to the bad weather.

Throughout the event, we regularly reassessed the risk of the adverse weather to our customers and tailored our communications messaging and frequency accordingly, particularly as the weather forecasts continued to change between 22 February and the weekend of 3 – 4 March.

During the peak period of the event (3-9 March)

During the incident our messaging was based on our standard approach to communications during an incident and was focused on the following key messages:

1. Our awareness of the issue, including its scale and impact on customers
2. Our response, i.e. providing reassurance that we are responding and an estimate of how long it might take to resolve
3. How and where customers can get extra help and support in the meantime e.g. alternative water supplies and vulnerable customers

The challenge, as explained in our response to D1, was that our ability to provide personal, timely updates was challenged by the scale of the event and the concentration of impact in on three areas, all of which had different root causes and therefore different activity in response and resolution timescales. While we did tailor our messaging by postcode, we attempted to focus our messaging around five key themes:

1. Urging customers to check their supply side for leaks
2. Reminding customers to use water wisely in light of the demand levels
3. Asking customers to only contact us if absolutely necessary so we could prioritise support for vulnerable customers
4. Providing updates on the availability of alternative water supply updates
5. Reassuring customers of the level of activity going on by our field teams to get them back into supply and provide some insight as to the challenges we were facing operationally.

After the event (post 9 March)

After the incident our messaging focused on ensuring we had each and every customer back in supply. We then turned our attention to providing customers and stakeholders with an explanation of what exactly happened and why, as well as what we would do to put things right and compensate them for the obvious disruption and distress. We used media channels, our digital channels and direct written communication to customers in order to do this. We made considerable effort to analyse the impact of the incident on all affected customers so that we could send them a personal, proactive response and compensation payment that reflected the level of disruption endured. Please see our responses in section E for more information on our approach to compensation.

Channel case study: our digital media campaign

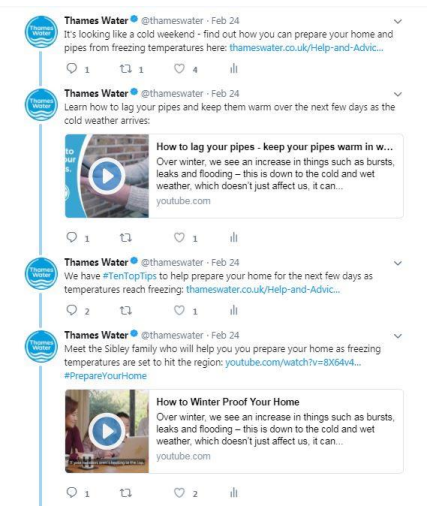
Our digital media engagement falls into three categories:

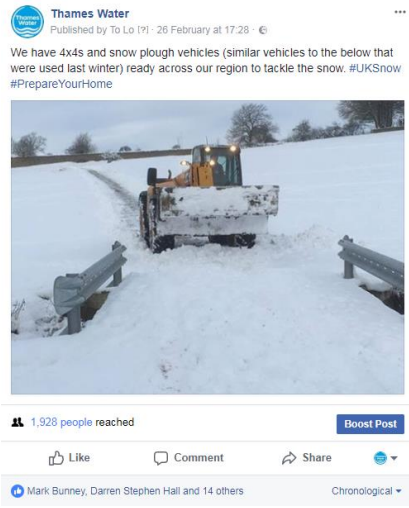
1. Broadcast: proactive messages to provide information/context

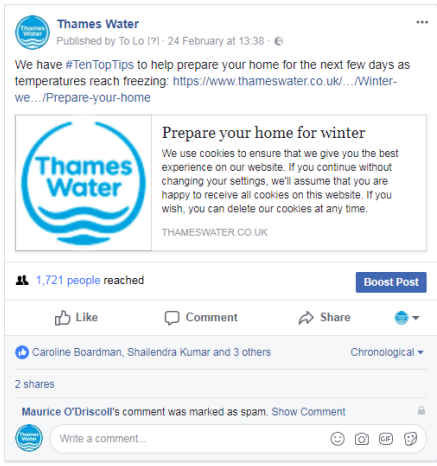
2. Postcode Specific Broadcast: where we have major incidents impacting a number of customers we proactively post regular updates to appraise customers of the situation impacting them
3. Reactive response: responding directly to customer questions, which forms the vast majority of our engagement. In a 'normal' week we would receive on average 600-800 contacts per day.

Our Digital and Customer Engagement team (D&CE) is responsible for broadcasting proactive messages through social platforms. In preparation for the heavy snow fall, the D&CE team prepared a series of social communications by both creating new and leveraging existing digital assets on our website to help customers prepare their homes for the wintry conditions. In particular, the communications focussed on lagging of pipes and what to do if a pipe freezes or bursts. The D&CE team also actively broadcasted the preparations we were making for the bad weather including the use of snowploughs and 4x4s, and lagging of pipes in our treatment works.

Examples of these messages are shown below.







As the severity of the weather became apparent, the D&CE team increased the volume of broadcast posts to provide customers with information should there be a burst or low pressure in their localised area.

As the snow fell, we saw a series of small localised issues impacting a number of customers. Our use of social media focussed on responding to these customers in a timely manner, providing updates where available and logging new issues where customers were impacted in areas that we were not more widespread. We experienced an increase of inbound social contact volume from 1 March as customers started to experience disruption. The volume of inbound contacts grew significantly from 3 March with over 26,000 inbound contacts received in a three day period.

During the evening of 3 March, as the supply interruptions increased, the D&CE team took information directly from the core event team and posted it to social media channels and the incident bar on our website. As the incident progressed the D&CE team attended all the event calls and fed all relevant information a) to customers via social and digital channels b) to the responding agents.

As it became apparent that the response teams could not individually respond to every customer, the decision was taken to mine the inbound social contacts for any customers citing a 'priority' or 'vulnerable' need. Our social engagement platform allows us to segment posts containing any specified words or phrases into a separate, prioritised queue for action. Vulnerable customers were engaged with to gather further details (e.g. contact and location details), which was then passed through to our 24-hour Customer Incident team who managed our response to vulnerable customers.

We also assessed the backlog of messages and could ascertain a large proportion of the volume was repeat contact from customers requesting updates; therefore, we maintained a rolling 'previous 12 hour' prioritisation of response.

Due to the various events happening during this period, we recognised that as soon as we proactively posted updates for one region, very quickly customers messaged us asking for updates on other areas. This further increased our inbound contact volume and backlog of contacts. This positive feedback cycle was extremely challenging to manage, and as a result 15 additional resources from across the business were drafted in to support the core customer service agents in responding to customers through social channels.

Question D3

How did you proactively engage with customers (by customer type) before, during and after the event?

Our response

As explained in our response to D2, we proactively used a number of channels to communicate with our customers before, during and after the event.. Therefore our response to this question briefly summarises the engagement which we have explained elsewhere in our response document and provides more detailed information on how we used digital media to proactively engage with our customers.

Summary of proactive engagement

Prior to the event, we provided proactive information on our website, social media and to news outlets describing the importance of preparing for severe weather and providing information on how customers could prepare for it, including how to lag pipes to prevent them from freezing.

During the event we used the following proactive communication methods:

- Phone contact to proactively speak to vulnerable customers and confirm whether they needed our support.
- Social media and our website to update customers on service issues, including where supply interruptions were and where possible how long they might last. We also provided information on our bottle water locations.
- Local media to explain to customers how we were responding to the event.
- Engagement with key local stakeholders, including councillors and MPs, on key issues within their areas.

Summary of post-event engagement

After the event, we used the following communication methods:

- Phone contact with vulnerable customers to ensure supplies were restored
- Social media, our website, and letters to apologise for disruption and explain the compensation payments we are making.
- Letters to our affected customers, to apologise for disruption and explain the compensation payment they will receive.

Question D4

What processes do you have in place for managing properties that are vacant, void or difficult to access (e.g. businesses that are closed at weekends) in the event of a major incident?

Our response

We have well-established processes for managing properties that may be vacant, void or difficult to access during a major incident like the recent freeze-thaw event.

When our operational teams identify premises that appear to have an internal leak and which are either difficult to access (e.g. a closed business) or vacant/void they will first confirm whether the property is active. If the property is has an active account with us, we will attempt to contact the customer based on whether it is an active household or non-household:

- For active households, we maintain current contact details and will attempt to contact the customer via phone or SMS.
- For active non-households (e.g. a closed business), we can contact them directly where they have already provided us with out-of-hours contact details through their retailers. Otherwise, we are reliant on the retailer to contact the customer on our behalf. We will, therefore, initially contact the retailer who can either contact the customer directly, or can provide us with the information to contact the customer. Ideally, wholesalers would automatically have access to customer contact details during emergencies, rather than being reliant on retailers' 24 hour contact numbers.

Where our billing system or CMOS (in the case of non-households) shows that the property is vacant, neither we nor the non-household retailer will have customer contact details for the property and we will not be able to make contact.

In either of these cases, if we are unable to access the property, we will turn the supply off in order to minimise damage and prevent further water loss.

Question D5

What ongoing support after the incidents have you put in place, in particular for customers in vulnerable circumstances?

Our response

Please see our response to question C5 for information on the support we provided customers during the period of supply interruptions and periods of low pressure.

After the risk to supply substantially decreased, we continued to manage the incident as a Level 3 event focusing on the recovery of our network to ensure customers did not experience further supply interruptions. We also kept in touch with customers who we identified as being in a vulnerable circumstance throughout the event, and once the water supply returned to normal, we proactively contacted these customers again to confirm their water supply was restored and they didn't have any new supply issues. Where customers' supplies were not restored, we appointed a case manager from our Customer Incident Management team to work on behalf of the customer until we had resolved the issue. For example, once supply was returned to an area, some customers continued to experience supply interruptions due to airlocks. In these cases, we arranged for a plumber to attend the customer property to clear an airlock.

When the water supply situation was returning to normal customers were kept up to date via telephone, social media and web channels. For customers who had their supply interrupted for more than four hours we are in the processing of writing to them to apologise and advise them of the compensation that they will receive.

It is our future intention to keep in regular contact with customers on our PSR. They will be given a priority telephone number for their use and we will be checking in with them to see if their circumstances have changed and that they are receiving the right services. We are also reviewing our PSR and how we work with other utilities and organisations to grow our database.

Where a customer has been severely impacted and experienced their home flooding as a result of a major burst, a loss adjuster will be appointed if the customer has asked us to handle their claim rather than their own insurer. The loss adjustor will work with our Customer Representatives, who are part of our Customer Incident team. The loss adjuster will support the customer through the claims process until it is completed and provide them with a booklet explaining the claims process. Our loss adjusters are also trained to assess whether a customer is vulnerable or may require other support and will take the necessary steps to protect the customer's interests, which might include engaging with other family members, carers, or using translators.

Section E: Impact on Customers and Compensation Arrangements

Question E1

Provide details of how you will identify which customers (by customer type) are entitled to compensation.

Our response

For smaller supply interruptions, our process for identifying affected customers is simpler and relies on local operational information during an incident.

For large events, like the one recently experienced, where a large part of our network was affected, we model the impact on customers to ensure we are able to identify all affected customers. We have also taken an approach of assuming that a customer was out of supply, if there is a chance that they many have been. This is to ensure that we provide compensation to all affected customers.

The large events during the freeze thaw period have been verified using the following process.

- The affected area is identified using event information and reviewing telemetry from monitors in the network
- This is then broken down into District Metered Area (DMA) or Pressure Managed Area (PMA) areas for modelling
- The DMA/PMA is traced in our Geographical Information System (GIS) system to generate a report of all the properties in the area and their respective heights above sea level (this system also shows the location of our assets).
- Data is extracted for all pressure monitors within this area (District Meters (DMs), Critical Pressure Points (CPPs) or PMA monitors)
- The property height data and pressure data is then combined into a modelling file which works out based on the property heights, monitor height and pressure data the number of properties out of supply at each 15 minute interval.
- This is then summarised into groups based on durations, for example properties with an interruption of between 7 and 8 hours, 6 and 7 hours etc.
- The results for all the pressure monitors in the area are reviewed to exclude any which are not representative (showing as always out of supply or in supply). Once these are excluded, the monitor which gives the most accurate representation of the impact for this DMA/PMA is selected.
- This is repeated for all affected DMAs/PMAs to get the total impact for the event

We then cross check this information against the list of customers we hold on our billing system, and market information about non-households to determine what type of customer they are.

By combining all of these elements, we have been able to confirm down to an individual customer level which customers have been affected. As a result we have been able to send bespoke letters to each of our affected customers and compensate them accordingly.

Question E2

Provide details of the automatic GSS payments, including any payment penalties, you expect to pay (or already have paid) to customers (by customer type) as a result of the incident period and the total value associated to these payments

Our response

The automatic payments we are making to customers affected by the freeze-thaw incidents are in excess of what is required under the Guaranteed Standards Scheme (GSS). The payments are also more favourable than what we normally provide customers with under our enhanced compensation scheme (Customer Guarantee Scheme – CGS), which already pays more than required under GSS.

Our response to this question explains:

- What our customers would have been entitled to under our business as usual CGS payments for supply interruptions;
- The enhanced CGS payments we will be making for customers affected by supply interruptions between 3 and 9 March; and
- Our approach to payment penalties for late payment.

Our business as usual CGS payments

Our CGS is available on our website[6] and is based on the requirements and qualifying criteria set out in the Water Supply and Sewerage Services (Customer Service Standards) Regulations.

The relevant regulations for GSS payments for this event are regulations 9 (for domestic premises) and 17F (for other premises). These regulations set out two qualifying levels for GSS payments:

- A supply interruption of 48 hours or more, where the supply is cut off or interrupted in an emergency because of a leak or burst in a strategic main.
- A supply interruption of 12 hours or more, where the supply is interrupted of cut off in an emergency but not because of a leak or burst on a strategic mains.

Under both types of supply interruption, our CGS payments are greater than the minimum GSS payment. It pays £30 for domestic premises, and £50 for all other premises once the above thresholds are breached. As under the regulations, our CGS provides additional payments for each additional 24 hour period the premise is still without supply. For domestic premises this is an

[6] http://secure.thameswater.co.uk/cps/rde/xbcr/corp/customer-guarantee-scheme-detailed-version.pdf

additional £10 per complete 24 hour period, and for all other premises it is an additional £25 per complete 24 hour period.

Enhanced CGS for customers affected between 3 and 9 March

Due to the scale and duration of the freeze thaw event and the supply interruptions between 3 and 9 March, we have decided to provide both domestic and business customers affected by supply interruptions during that period with greater compensation than offered under our business as usual. Table 9 sets out the enhanced payments we are making automatically to customers.

Table 9: A summary of Thames Water's enhanced CGS payments for supply interruptions during 3 – 9 March

Supply interruption duration	Payment values	
	Domestic premises	Other premises
4-12 hours	£30	£30
12-24 hours	£50	£50
24-48 hours	£100	£100
48+ hours[7]	£150	£150

Source: Thames Water

For schools which had to close during this time, we have committed to making a discretionary payment of £2500 to each school. As well as this, we are also offering these schools our education package – this is where they can visit our sites and take part in a talk on STEM subjects.

The payments we are providing are enhanced in three ways:

- We have reduced the qualifying time duration threshold at which compensation is paid to customers, paying customers for supply interruptions of at least four hours in duration regardless of whether it was caused by a burst on a strategic or non-strategic main. Normally customers affected by a strategic mains burst would only be compensated for supply interruptions in excess of 48 hours, and a customer affected by non-strategic mains burst would not receive compensation until they had experienced at least 12 hours of disruption.

- We are paying CGS payments for supply interruptions at properties where pressure is less than five metres head at the property. We have taken this approach, as there are a number of variables such as property type which might affect whether a customer experienced low pressure or no water. We are therefore compensating some customers for an interruption to supply which otherwise may have only be identified as low pressure.

[7] Additional 24 hour periods are paid in line with our normal CGS

- The compensation is higher overall for comparable supply interruption durations, for example, a customer who loses supply for 72 hours will receive £150, whereas under our business as usual CGS a domestic customer would only receive £60 and commercial customer £125 (in the event of a non-strategic mains burst).

We have not calculated the total level of payments that would have been paid to customers if we had only paid the minimum required under GSS or our business as usual CGS. This is due to the significant differences in the enhanced compensation payments we are making to customers (as highlighted above) and that our focus is currently on ensuring customers receive the correct level of compensation that we have committed to under our enhanced CGS.

Late Payments

We make penalty payments for late payments, where necessary, in accordance with the requirements under GSS. This means that compensation payments for customers out of supply for less than 12 hours for non-strategic mains bursts and less than 48 hours for strategic mains bursts will not receive additional payments should we fail to provide compensation within 20 working days.

Due to the scale of event, we are automatically making late payments within the total amount of compensation provided to customers.

Question E3

Provide details of any further compensation you will be providing to customers beyond automatic GSS payments and how the level of compensation was calculated relative to the disruption customers experienced. In doing so please provide details of the numbers of customers (by customer type) you expect to receive this and the total value associated to these payments.

Our response

Please see our response to E2 for the enhanced compensation payments that we are making to customers affected by supply interruptions between 3 and 9 March, including an explanation of how they are significantly better than required under GSS and our business as usual CGS.

Our response to this section, therefore, only explains:

- How we decided on the level of compensation for customers relative to the disruption caused; and
- The value of payments we are expecting to make to customers.

Level of compensation

Given the level of disruption our customers experienced between 3 and 9 March, we wanted to ensure that our customers received:

- An unprecedented and industry leading level of compensation; and
- On average, a meaningful proportion of their annual bill back depending on the level of disruption caused.

We therefore designed our enhanced CGS package with reference to other companies' compensation packages and also the average bill in our area; testing it with our CCG and several key stakeholders to ensure it would meet customers' expectations. As a result all customers experiencing a supply interruption of four hours or more will receive minimum £30 compensation, which is around one month of an average annual bill.

Total value of compensation payments by customer type

We are still in the process of verifying all supply interruptions to determine the level of compensation payment for each affected customer. Data table two, which accompanies this submission, sets out our current view of the total number of customers affected by supply interruptions according to the duration of the interruption and an estimate of the split between domestic and non-household customers.

Based on our current information, we estimate the value of total payments to customers.to be nearly £2.8m

Question E4

Provide details of how long you anticipate the process of compensating all affected customers will take and the methods by which the compensation will be paid (e.g. automatic, cheque). Will there be an application process for any elements of compensation? If so, please describe the process.

Our response

Our objective is that no customers should need to apply for compensation and we are working to proactively identify affected. We estimate that supply interruptions affected approximately 60,000 properties[8] and we are committed to automatically paying customers compensation within April, with the aim of meeting requirement under GSS to pay customers within 20 working days.

As a company who exited the non-household retail market on 1 April 2017, we are reliant on retailers to provide compensation to non-household customers on our behalf. We are working closely with retailers to ensure this happens as quickly and smoothly as possible. We have provided them with customer specific information regarding the duration and severity of the interruption to enable them to manage their response to their customers effectively.

With regards to our domestic customers, we are in the process of making automatic compensation cheque payments and sending letters of apology from our Chief Executive. Our decision to pay customers via cheque rather than automatic bill credit is as a result of consultation with several stakeholders and our CCG. In particular, our CCG's key concern was that were we to pay compensation as a credit to bills, many customers would have to wait 12 months to benefit from the credit as we had already issued bills for 2018-19.

We recognise that payment by cheque may not be ideal for every customer and so we have, committed to crediting customers' bills with the compensation amount on request. Additionally, after six months, we will review the number of cheques not deposited by customers and credit those customers' bills with the relevant compensation amount to ensure they receive it.

Our retail centre staff have all been briefed on the enhanced CGS payments for customers affected between 3 - 9 March and they are ready to advise customers via multiple platforms should they have any questions. As under the normal compensation process, we will review customers' cases where they express concern that they have not been paid appropriately.

In some cases, we may not have a direct billing relationship with our customers, for example local authorities or housing associates who pay us on behalf of their tenants. In these cases, it may take longer for us to pay these customers and we are in the process of contacting these customers to confirm payment details so we can provide them with cheques.

[8] This is based on the number of supply interruptions which lasted three hours or more

Section F: Reflection and Lessons Learnt

Question F1

Provide details of what you considered to work well and what you considered to need future improvement for your company and why in relation to:

a) Identifying and repairing supply interruptions and actions taken to prepare the supply and network system;

b) Communicating activities to customers/stakeholders (by customer/stakeholder type);

c) Identifying and supporting the needs of customers in vulnerable circumstances; and

d) Having the appropriate governance processes in place.

Our response

Throughout winter, we had been focussed on the potential impact of severe weather on our operations and ultimately our customers. While this focus helped us to prepare for the weather, we had underestimated the scale of the impact of the sudden freeze and thaw. This meant that going into the weekend of 3 March, our event and emergency plans were not as resourced as they could have otherwise been. We do not know the impact increased resources might have had on our ability to resolve the volume of supply interruptions our customers were experiencing, at least in part due to the proportion of customers who experienced no water or low pressure due to customer supply side issues.

We were, however, able to partially mitigate the impact on customers through the contingency arrangements we had in place at our water production sites, our contact centres, and at our logistics hubs.

Our response to this section sets out in more detail what worked well and where we need to improve in relation to:

a) Supply interruptions
b) Customer and stakeholder communications
c) Providing support to vulnerable customers
d) Our governance processes

a) Supply interruptions

As we have explained in response to earlier questions, over the last few years we have significantly increased our capability to manage events, and already had in place comprehensive and robust plans and procedures to manage the 2017/2018 winter and severe weather. This approach worked well for us and ensured we were ready to respond to weather forecasts for cold weather.

However, the models we used to predict the impact of the severe weather on our business underestimated the impact of the fast freeze and the fast thaw on mains bursts and on demand. As a result, over the weekend 3 March – 4 March we were not as fully resourced to find and repair supply interruptions as we could have otherwise been had we estimated the true impact of the weather. During the weekend we attempted to mobilise additional resources, but with limited success. We do not know the impact increased resources might have had on our ability to resolve the volume of customer supply interruptions.

These are key learning points for our business, and as a result we are reviewing:

- Our level of weekend resources during events, including our ability to quickly bring in additional resources as situations escalate.
- Our models to understand why they may have under-predicted the impact of the weather on demand and how we can improve our prediction tools.
- How our event procedures can proactively address the risk of underestimating the impact of severe weather.

Due to our early preparation and event plans, we did have contingency supply arrangements in place and we had been managing our water production sites to meet the anticipated increased demand. We recognise we did not fully predict the impact that customer demand would have on the volume of water we needed to put into supply. However, the contingency arrangements did limit the extent of the impact on customers, and our ability to ramp up production output, including bringing other water production sites back into operation, prevented the issues becoming more widespread.

In addition to contingency supplies, our systems operations teams worked around the clock to carefully balance supply across the overall network. This was a particular challenge within the London area due to the level of storage across the London network. Noticeably, although we were dealing with very similar issues in Thames Valley, we were able to meet the sudden rise in demand in Thames Valley due greater storage capacity in the area's network.

In the London areas, where customers suffered the most from supply interruptions:

- Two areas related to impacts from high demand not being met by our storage volumes, combined with secondary issues which caused airlocks in the system - leading to low pressure or loss of supply.
- One area was as a result of burst mains causing the reservoir to drain.

There are a number of learnings from these areas that we will pursue further. We are already making changes to our control systems to manage the risks in these areas. However, the impact of the level of storage in some parts of London will take longer to understand and we need to investigate further the impact it had on our ability to respond to the event.

b) Communications

Throughout our responses to these questions we have highlighted how we have strengthened our approach to managing customer contacts and communications during events. The work and investment in our approach to date enabled us to manage the significant increase in contacts we received during the peak period of the event, which were significantly in excess of what we predicted or have ever experienced. While we are still reviewing the effectiveness of our event management in relation to customer contacts and communications, our preliminary view is that communication could have been more effective during the peak period of the event. This is

particularly in relation to providing customers with local information about supply interruptions and also the availability and location of alternative water resources. We are reviewing our approach as to how we can provide customers with better information during incidents.

The key learning point here was that our communications approach will only ever be as effective as the data, information and insight we have. In this scenario the complexity, scale and rapidly changing nature of the issues we were managing challenged the effective operation of communication channels. Whilst we successful in some areas such as correlating information from social media with network insight in real time to prioritise field work and customers updates, overall the information and feedback loops between our network management centre, field operations and the customer operation were not as effective as they needed to be in order to keep customers regularly and proactively informed. .

c) Identifying the needs and supporting our priority customers

Our response to question C5 explains our process and experience of identifying and supporting priority customers. Prior to the incident, as part of the industry collaboration that we are supporting in relation to support for vulnerable customers, we recognised that our PSR underrepresents the level of vulnerability within our customer base, especially when for example compared to the energy sector. During the incident we also identified customers who might just need more support for other reasons e.g. language barriers, and living in flats without lifts. In one case, we were able to work with Age UK Wandsworth to address some gaps in our PSR, and in other cases, we were able to identify vulnerable customers through contact with them e.g. social media and calls.

This is a key learning point for us and we already are working on plans to grow our PSR by an order of magnitude by the end of this AMP and during the next one. We will do this by continuing to work with other utilities and the third sector; undertaking engagement campaigns; and introducing a more simple online application process. Most significantly we are playing a leading role in developing the industry-wide data sharing agreement between Energy and Water.

In terms of providing alternative water supplies to other customers who did not need additional support, we were:

- Rapidly able to increase the volume of bottled water we had available and also organise large scale logistics exercise to deliver this to the bottled water stations.
- Able to carry out localised distribution of bottled water (including to priority customers).

We believe both of these activities were a success during the event. We learnt, however, that not having predefined bottled water locations in the context of a geographically widespread impact meant early coordination of activities did not run as smoothly as they would normally. We have already started work on identifying key areas in our region that we can operate from in the future. This will allow us to be more effective and will also help us communicate more clearly with our customers.

d) Governance

Our control and governance of the event is a key success area for us. The plans and procedures we had in place and the reporting and decision-making process meant that as a business we were

able to respond quickly to the changing weather events and our customers' needs. In particular, our approach to governance enabled us to respond quickly as soon as we realised our models had underestimated he impact on mains bursts and customer demand.

Specifically, our approach to managing winter as an event meant:

- Plans were already in place to manage the impact of the weather, including protecting sites and mobilising increased resources prior to the arrival of the adverse weather conditions arriving.
- Contingency arrangements for water production were already in place and could be implemented swiftly.
- We continued to manage and monitor risk throughout the event, so we could identify quickly when circumstances where changing.
- The escalation and decision-making process was known and understood by all on the event team, enabling them to respond quickly to changing circumstances.
- Senior management and the Executive members were well briefed on the event, ensuring they were ready and able to step in to take direct control as the event escalated. The event was led by an executive team member from the Saturday of the event through to its conclusion.
- Regular updates were provided to our Board and to key stakeholders, including Ofwat, CCG and the Mayor of London office.

Ultimately, as a result of our approach to governance we were able to manage the event and maintain the overall operational performance in our business.

Question F2

What were the biggest constraints to your company doing more, faster to respond to issues customers faced?

Our response

We believe our ability to increase our water into supply, balance our network, manage large volumes of customer contacts across several channels, significantly increase alternative water supplies and our event planning and arrangements were all strengths.

However, there were a number of challenges and constraints, which we have identified throughout our response. To summarise, these include:

- **Our ability to increase weekend resources at pace**. Had our models fully predicted the true impact of the weather on our network, we might have been able to plan additional resources to find and fix supply. We do not yet know whether having more resources to repair these would have made a significant impact on being able to restore supplies earlier and this is an area we are investigating. We are also looking at how we can reduce this constraint for future events. Our resource levels did not affect our ability to bring additional water into supply, with us increasing production in response to the significant increase in demand. The same is true of our contact centre resources to support calls from customers. Whilst we did have contingency support options and resources in place they were not sufficient to deal with the volume spike we saw and it took time for us to be able to ramp up the required resources over and above this, to a peak of 367 on 7 March.

- **Gaps in our PSR.** As an industry we have already identified that our PSR is not as comprehensive as others, such as the energy industry. We are continuing to work to address this as a key strategic priority. Whilst we contacted and supported all customers on our PSR and were able to work with our retailers if we needed, we were unable to proactively identify all vulnerable customers who needed support accessing alternative water supply. While we were able to identify additional customers who needed support during the event, this was reactive and we recognise a more comprehensive PSR would have facilitated our response to customers.

- **Our modelling capability:** our models did not predict the full impact of the freeze-thaw event, which was unprecedented. We relied on these models to inform the extent of our preparations for the cold weather and therefore we were unable to fully pre-empt the risk of the severe weather and mitigate the impact on customers.

- **Managing and responding to customers via social media:** Although we significantly increased resources to deal with social media traffic and created an approach to identify supply risk areas and customers, we were not able to respond to all customers individually via social media. We will take learning from this to improve approach in this area. However, during events like the one experienced, where we receive such a significant and fast spike in volume of contacts, having the scale of resource that would be required to respond to each customer individually is likely to remain a challenge. Our focus therefore will be on how our interaction and communication via this channel can be clearer with regard to the approach we

are taking, why and more specific at postcode level, to better manage customer expectations and keep customers informed.