

‘Beast from the East’
Lessons learned put
into practice
Investing in Crowborough,
Rotherfield, Mayfield and Wadhurst
April 2019



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1. Introduction

The 'Beast from the East' in early 2018 resulted in thousands of our customers being without drinking water for a period.

This was unacceptable to us and we committed to publishing the results of our investigations into what happened, identify lessons learnt and set out how we propose preventing a water outage of that magnitude happening again.

Here we outline what happened in the Crowborough, Rotherfield, Mayfield and Wadhurst areas and detail our future investment plans.

2. What happened

Between 26 February and 3 March 2018 the UK experienced a period of prolonged cold temperatures dubbed 'The Beast from the East' by the media. This came to a sudden end on 3 March 2018 with much warmer weather arriving from the south.

Table 1: Temperature data from 26 February 2018 to 8 March 2018

Date	Min temperature (°C)	Max temperature (°C)	Temperature range (°C)
26/02/2018	-2.5	2.0	4.5
27/02/2018	-3.5	0.2	3.7
28/02/2018	-4.8	-1.4	3.4
01/03/2018	-10.2	0.4	10.6
02/03/2018	-7.0	1.7	8.7
03/03/2018	-5.9	7.5	13.4
04/03/2018	-3.7	7.2	10.9
05/03/2018	-0.2	8.3	8.5
06/03/2018	3.6	10.6	7.0
07/03/2018	2.6	9.4	6.8
08/03/2018	1.2	10.2	9.0

Dramatic and rapid changes in temperature causes movement underground resulting in leaks and bursts, not only on our water pipes, but customers' too. When this happens we see a surge in demand for drinking water, putting extra pressure on our infrastructure from boreholes and water treatment works to pumping stations and pipes.

This meant that during the first few days following the 'Beast from the East' we needed to pump an additional 105 million litres, the equivalent of 1.3 million baths loads of water, through our system each day, to meet this increase in demands.

Unfortunately, the surge in demand was so quick we were unable to increase the amount of water extracted from boreholes and reservoirs, treated and distributed through our pipelines as quickly. This led to several key underground reservoirs where we store treated water

emptying faster than we could fill them resulting in some customers fed by these reservoirs losing their tap water supplies. In the Crowborough area more than 8,400 customers were affected by the incident and over 5,000 customers went without water for over 48 hours.

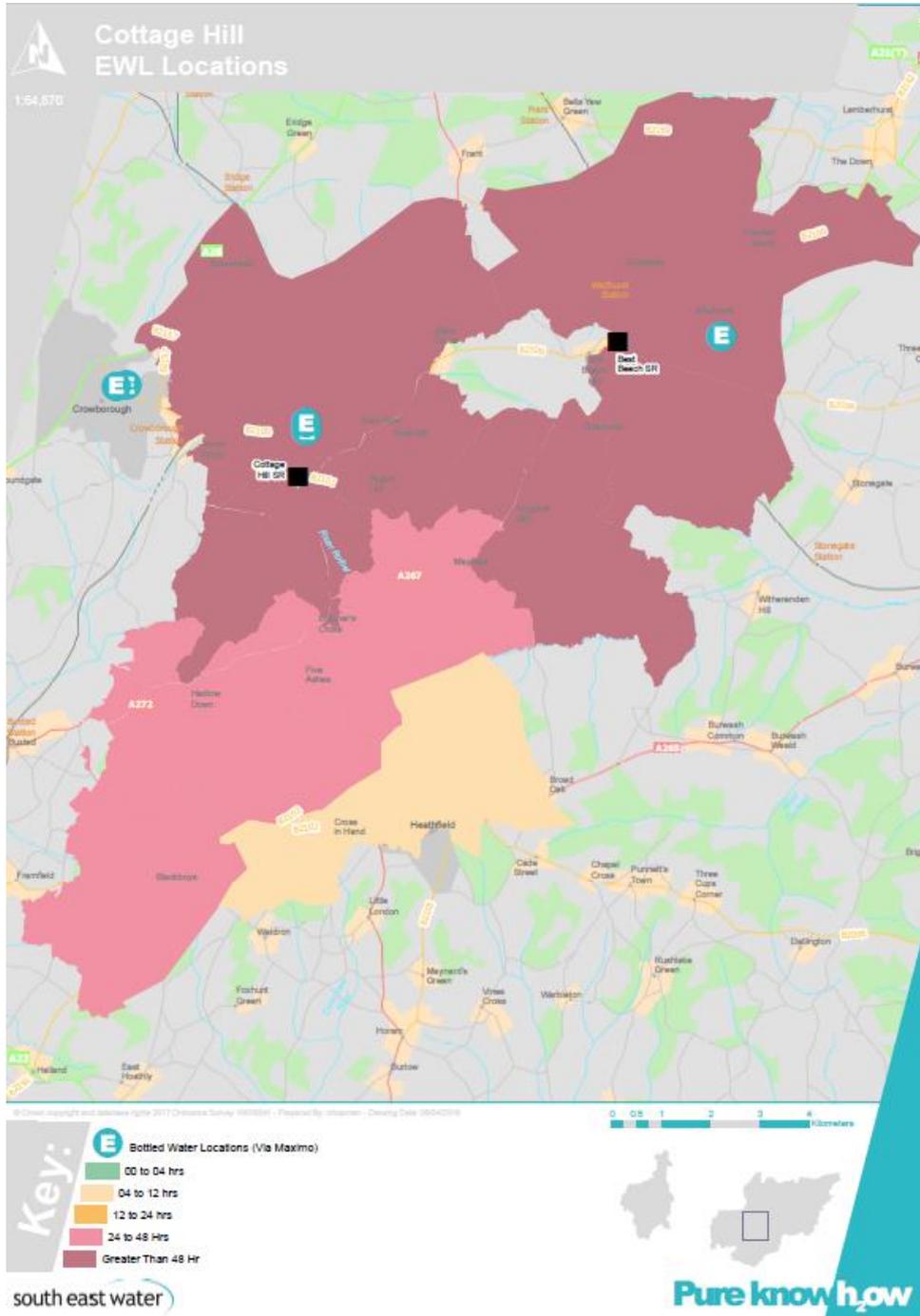


Figure 1: The areas impacted around Crowborough, Rotherfield, Mayfield and Wadhurst and the bottled water locations

2.1 Why were the Crowborough, Rotherfield, Wadhurst and Mayfield areas specifically affected?

The network that supplies these towns and surrounding areas is heavily reliant on our largest water supply site, Barcombe Water Treatment Works (WTW). This provides 85 per cent of the drinking water in this area. Additionally, these towns can be supplied by our smaller treatment works at Groombridge and Coggins Mill near Mayfield.

The water from Barcombe WTW is pumped to our reservoir at Horsted Keynes, and then across to our treated water storage reservoirs near Coleman's Hatch and Crowborough, where it then flows by gravity to customer taps.

In the lead up to the bad weather, Barcombe WTW had been partially closed for winter maintenance. We undertake a large part of our maintenance programme between autumn and late spring when customers use far less water and we can take the site offline while still having the capacity to supply drinking water to customers. When the prolonged snow was forecast, we stopped this maintenance work and brought Barcombe WTW back to full output but this was delayed as a critical valve had frozen shut in the cold weather.

Additionally, with temperatures dropping to -11 C, both Groombridge and our Coggins Mill water treatment works also experienced frozen pipes on some of their water treatment chemical dosing lines, which had to be resolved before this water could be used.

This did mean, that during the 'Beast from the East' our drinking water storage reservoirs were not as full as we had planned and our treatment works were not operating at full capacity. The additional water demand, caused by the increase in bursts and leaks outstripped our ability to fill these reservoirs and a number of them emptied.

2.2 What did you do to restore supplies?

We worked hard to identify leaks and bursts on our own network and we were able to repair the majority of those found within 24 hours.

However, this only accounted for 20 to 30 per cent of the extra water demand, with the rest due to leaks and bursts on customers and commercial businesses pipes, or due to people leaving taps running to prevent pipes freezing. Where we identified customer leaks, we proactively worked with those customers to fix them. While we worked hard to plug the leaks as quickly as possible, we also increased the amount of water we extracted from boreholes and reservoirs and pumped through our treatment works which helped restore supplies to the majority of customers within 48 hours.



Figure 2: Fixing leaks on pipes across our supply area

Due to the configuration of the network, we needed to fill our drinking water storage reservoirs near Crowborough in sequence which meant a delay in restoring supplies in Crowborough Town due to the distance from Barcombe to Crowborough.

2.3 How did we act and communicate to customers?

As with most utility suppliers, we have a plan in place for major incidents which we followed during this event. This ensures we mobilise additional staff to find and fix leaks on our network, maximise outputs from our treatment works and manage bottled water stations.

We had alternative water stations located initially at the Village Green, Church Road which later moved to Waitrose Car Park along Croft Road and then to the library car park in Pine Grove. Acting on feedback from local residents we moved the station to Jarvis Brook, a more central location. Bottled water was available from 4 March 2018 and static tanks were available at the station from 6 to 8 March 2018 to assist with customer toilet flushing.

We also had additional teams delivering bottled water directly to all known vulnerable customers and water tanks to livestock owners.

Customers were kept informed throughout via our website, social media channels, stakeholder notifications and our call centre. Local media were kept up-to-date at all times with regular interviews provided to local radio, BBC South East Today, Meridian and information issued to online and print press.



Figure 3: Delivering bottled water direct to those on our Priority Services Register

3. Lessons learned

In March 2018, Ofwat launched a review of the Freeze/Thaw event across the UK with particular interest on those companies which had large numbers of customers affected for over 12 hours, such as ourselves. Following that investigation the regulator published its report 'Out in the Cold: Water Companies' response to the 'Beast from the East' in June 2018.

You can view Ofwat's 'Out in the Cold: Water Companies' response to the 'Beast from the East' report at: ofwat.gov.uk/publication/cold-water-companies-response-beast-east



The report evaluated our response to our own investigations and lessons learned as well as requesting that we prepare an action plan to prevent anything like this happening again.

Our report 'Beast from the East incident response – South East Water action plan' includes 61 actions that will minimise the chance of a similar weather event impacting on our customers as severely. As well as actions to address our planning, preparation, customer communication and compensation for these types of events, we also looked at our longer term infrastructure investments.



You can view our 'Beast from the East incident response - South East Water action plan' at: corporate.southeastwater.co.uk/actionplan

3.1 Our investment plans

This part of our supply area is heavily reliant on water being available from our Barcombe WTW, supplemented by alternative supplies from our sites at Groombridge and Coggins Mill.

Our investment plans therefore focus on making these supplies as reliable as possible and increasing the amount of water we can transfer from the alternative sites.

The Barcombe WTW will always need to have planned maintenance undertaken and therefore it is important that this maintenance does not overly increase the risk to supply, when it occurs.

Our planned investment in the area is outlined in the table below:

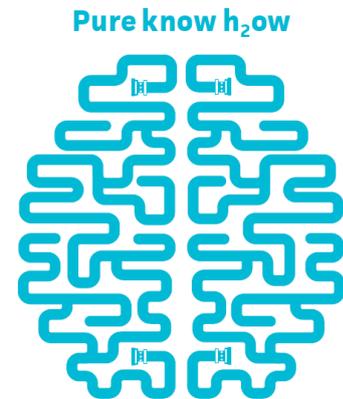
Table 2: Planned Capital Investment in the area for Future Resilience

Investment	Description	Expected completion date
Replace/protect the valves at Barcombe WTW	Fully release and inspect the valve that froze during the event and replace as necessary. Install further protection from future frosts such as insulation	Complete
Groombridge to Hourne Farm strategic water main	Install a large strategic main to distribute more water from Groombridge WTW to Hourne Farm drinking water storage reservoir	Complete
Hourne Farm to Cottage Hill new strategic water main	Install a large strategic main to distribute more water between Hourne Farm and Cottage Hill drinking water storage reservoirs	2023
Bewl WTW to Cottage Hill water storage reservoir	Install a large strategic water main from Bewl WTW to Cottage Hill drinking water storage reservoir to increase the amount of water available to distribute to Crowborough and surrounding areas	2030
Barcombe WTW resilience scheme	Increase the output capacity at Barcombe 1 WTW to mitigate site output losses when carrying out works to Barcombe 2 WTW, the larger of the two sites. The investment will allow more effective and low risk maintenance to be undertaken.	2025 (if funded by Ofwat in our 2020-2025 business plan)

Our Barcombe WTW resilience scheme is included within our proposed 2020-2025 business plan which is currently being assessed by Ofwat and is therefore subject to the regulator's approval.

You can read our draft business plan at: southeastwater.co.uk/businessplan

south east water



2020 to 2025 Business Plan

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3.2 Progress on other key actions



3.2.1 Winter Ready campaign

A key lesson learned was the need to do more to target winter campaign messages to customers which provides relevant and useful information in a timely manner. We focussed on improving our customer communications including the winter lagging campaign and crisis communications.

This has been evident over the winter of 2018/19 with the relaunch of our Winter Ready campaign which included free devices and packs for customers to help them prepare for extreme cold temperatures. By the end of February 2019 we had reached almost 1,900 customers since November and distributed over 2,750 of the winter items.

You can find out more about the campaign at: southeastwater.co.uk/winter

3.2.2 Research

We are undertaking research on the impact cold weather has on customer's pipes and how we can further help our customers improve their own resilience. This includes our new concept of the 'resilient customer' outlined in our draft Business Plan 2020-2025.

3.2.3 Bottled Water

We have improved the management and distribution of our bottled water supplies both internally and with our suppliers to ensure we receive and can distribute the emergency water we need if such an event were to happen again.

We now have a standard design for alternative water stations which details specific requirements such as; size, staffing, security notices and traffic management to ensure all sites chosen are suitable.

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