

Pollution Incident Reduction Plan

Quarter 3, 2020 update

Wessex Water

October 2020

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Document version control

Major version number	Details	Lead contact	Date
1.0	As published on website	Matt Wheeldon	12 Oct 2020

1. Introduction

This is the third quarterly update (covering July-September 2020) to our [Pollution Incident Reduction Plan](#) – which was first published in March 2020.

Our plan is divided into 4 themes: People and Process, Assets and Maintenance, Customers and Stakeholders, Telemetry Data and Analysis.

In this update, we report on progress with delivering the plan, present case studies and examples of what we have delivered and report on the effectiveness of the plan on our way to our aspiration to cause no pollution incidents.

2. Quarterly progress report

2.1 Numerical quarterly activity analysis against the plan

Theme	Activity (in-period unless otherwise stated) – (Unit)	Q1 2020	Q2 2020	Q3 2020
People and Process	Pollution incident training (cumulative since Sept 2019) (Nr)	99	0*	120
Assets and Maintenance	Length of sewer surveyed (Km)	1.3	5.5	4.7
	Sewerage Investigation Assessments completed (Nr)	54	21	32
	Treatment Investigation Assessments completed (Nr)	1	0	0
	Rising Main Assessments completed (Nr)	0	1	0
	Length of sewer rehabilitated (Km)	0.5	0*	1.1
Customers and Stakeholders	Summer shows: number of people engaged (Nr)	0	0*	0*
	Student fairs: number of people engaged (Nr)	0	0*	0*
	Attendees at Open Doors events (Nr)	0	0*	0*
	Social media reach (Nr)	183,746	135,083	99,486
	FSEs investigated (Nr)	135	0*	405
	Personalised letters following blockage incidents (Nr)	227	150	334
	Water Guardians engaged (Nr)	0	0*	0
Telemetry Data and Analysis	Cumulative number of intermittent overflows monitored (and % of total) (Nr)	970 (75%)	1000 (77%)	1021 (79%)

*Zero due to the impact of COVID-19

2.2 Qualitative quarterly progress report on initiatives

Theme	Activity or initiative	Q3 2020 Progress report
People and Process	Pollution incident register	Completed last quarter. Now BAU.
	Additional equipment roll-out	43 monitors have now been deployed in Sewerage Operations.
Assets and Maintenance	Artificial Intelligence sewer scanning initiative	The project is ongoing
Customers and Stakeholders	Update on events	No face-to-face events due to the Covid-19 pandemic. 4,000 GunkPots and Stop the Block flyers inserted into fresher student goody bags in University of Bath halls of residence.
	Anti-FOG initiatives	Site visits in Swanage Wincanton, Bridport and Wellington commenced. Under Section 111 three FSE's have now been recharged for costs associated with blockages they have caused.
	Hotspot competition/promotions	Social media comms trial completed in Trowbridge w/c 29/06. The advert reached nearly 18,000 customers, was liked 93 times and shared 51 times. We had 40 entries who commented with a pledge to only flush the 3Ps. We recently sent a free GunkPot to around 90 properties on Yarbury Way in Weston-Super-Mare which was identified as a FOG blockage hotspot. A letter was sent asking customers to complete a survey giving feedback on the GunkPot and comms received which entered them into a prize draw for a £30 Amazon voucher. 8 customers completed the survey; and 5 of them fed back they were already disposing of FOG in the correct way. There have been no further FOG incidents in this area since the trial began.
	Joint waste messaging with local authorities	Remains on hold due to COVID-19

Initiatives continued:

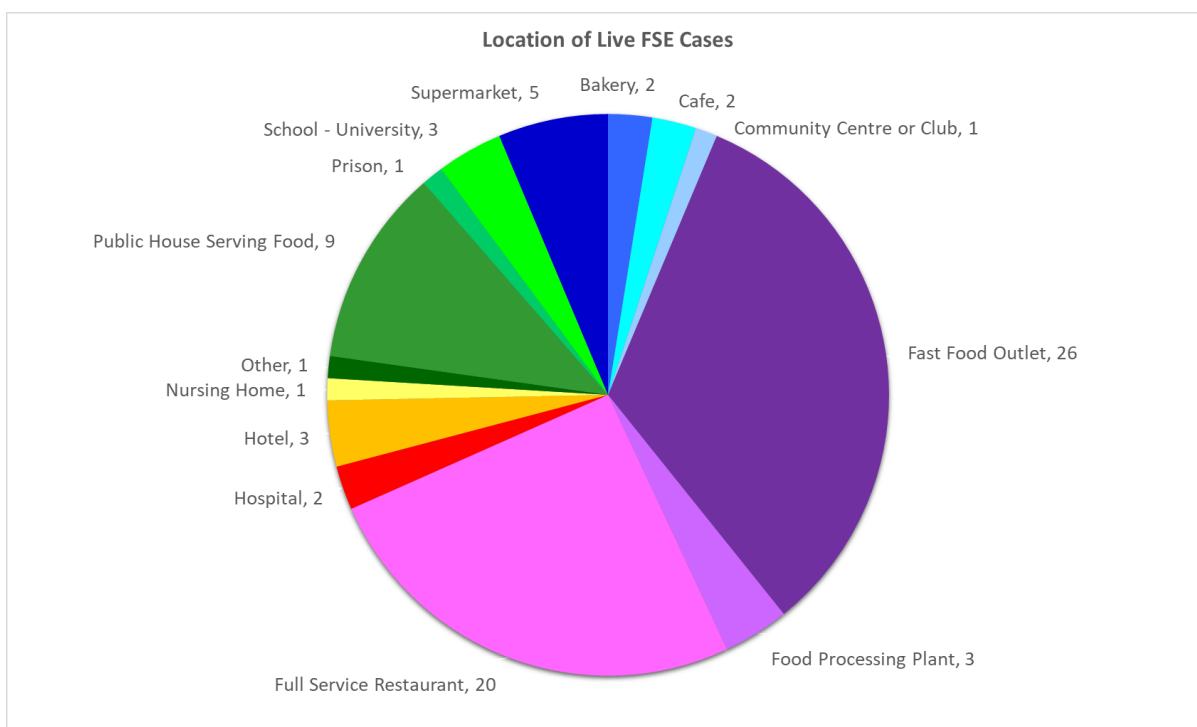
Theme	Activity or initiative	Q3 2020 Progress report
Customers and Stakeholders	Sewer Misuse - Marketplace	Closed - Final update provided in Q2
	Partnership working	The Resource West Group is meeting weekly to develop plans to facilitate shifts in consumer behaviour to reduce resource consumption (electricity, gas and water) and promote the correct disposal of waste, as well as protecting more vulnerable members of our community from resource poverty. Comms workshops are currently taking place and a pilot programme is expected to run before the end of this year with a full launch in early 2021.
	Water Guardians	Contract signed with the Somerset Wildlife Trust, recruitment to commence in October/November of 25 volunteers, in the Brue catchment and the Somerset Levels.
	National engagement	Need for mandatory labelling of products that could be deemed flushable raised with Defra at the Storm Overflows Taskforce throughout August and September. Conversation with other Defra officials and EA Chair on same topic raised on 5 th Oct at meeting in Bath. Proposal that unless products have passed the WIS 4-02-06, all should be marked 'Do Not Flush'.
	Regional initiatives and events	No face-to-face events have taken place this quarter due to the Covid-19 pandemic.
	Local initiatives	Customer behaviour working group to look at how we can break customer behaviour somewhere in the journey of purchasing, using and then disposing of wet wipes. This will be ongoing for a few months and the measure of success will be in reducing blockages.

Theme	Activity or initiative	Q3 2020 Progress report
Telemetry Data and Analysis	Sewer depth monitor machine learning	The three-month trial with the three vendors is now over and we are reviewing the results to measure their performance. Some of the companies successfully identified partial blockages in the waste network and provided timely alerts. Due to the challenging weather conditions during the trial period it would not have been sensible to simulate blockages in the network. However, we did carry out routine maintenance on devices and in that process the devices simulate a high level for a short period of time. Some suppliers successfully identified these. We also had some genuine issues within the network that the suppliers identified for us which will have prevented further network issues. The trial has successfully shown that there is a place for these technology solutions to improve near real time understanding of the waste network.
	Rising main burst detection	Detection system continues to improve. We have completed an upgrade to the communication systems enabling data transfer from sites every hour. The burst detection analysis is now being undertaken when new data arrives, and exceptions/anomaly alerts are generated.
	Rising main burst prevention	Trials underway into smart air valves (which alert when blocked/leaking) and resilient air vales (which should handle FOG better)
	Pumping station enhanced diagnostics	Good progress in Sewage Pumping Station diagnostics allowing us to move towards a condition-based maintenance strategy and picking up potential issues before full failure. A Qlikview reporting tool has now been published (Pumping Station Scorecard - Site Analysis), but further changes are required to make this usable and produce reliable exceptions, e.g. ongoing issue of high-resolution automated rainfall data, awaiting IT solution. Trial exception reporting has continued (over 20 sites/potential issues have been resolved in the last 3 months, before becoming a problem on site using average nr. pump starts/day, average pump time/day, flow/power data for pump performance). Meniscus "Pump Health" dashboards have been created for more detailed analysis of the Top 10 sites per operating area and this list is being added to with sensitive/problematic sites. We are also developing a 'virtual' drop test Meniscus dashboard; the methodology is currently being validated on sites with installed flowmeters. This can be used as guidance for flow compliance, also SPS performance by alerting a deterioration in flow which would prompt pump maintenance. Finally, we are developing a Meniscus dashboard for powered screens at SPSs which would identify operating issues and non-compliance.

2.3 Case studies

2.3.1 ECAS: The fight against fatbergs

Following their successful 6 month “Proof of Concept” trial in the Shaftesbury area, ECAS are expanding their programme to cover 15 further sewage treatment catchments, where they will continue to target commercial food service establishments (FSE’s) to reduce Fats, Oils and Greases (FOG) entering the public sewer. Since the programme began ECAS has visited a total of 89 FSE’s, where they use relevant legislation and regulations to; perform inspections, provide guidance, co-ordinate solutions, and carry out ongoing monitoring and support. This has resulted in the installation of 63 grease prevention units.



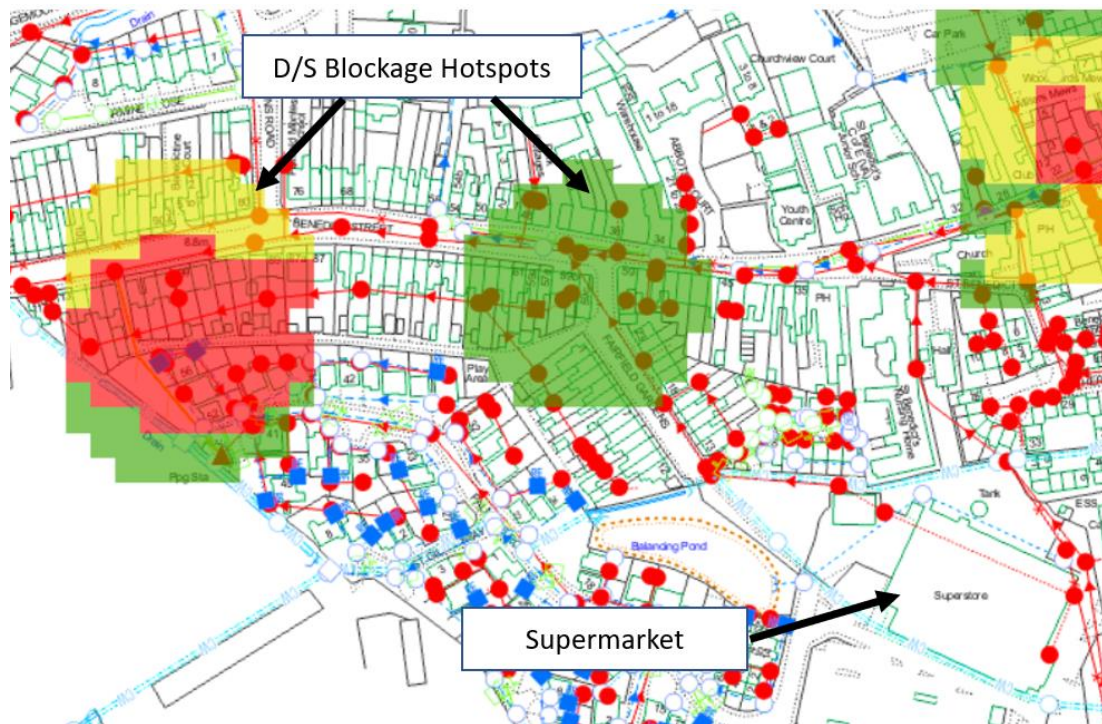
Recharging

Section 111 of the Water Industry Act means disposing of FOG incorrectly is an offence and it is possible for Wessex Water to charge FSE’s for costs associated with blockages they’ve caused. Since the Recharge process has begun ECAS has recharged 3 FSE’s, 2 in Shaftesbury and 1 in Glastonbury, for a sum greater than £21,000.

In order to continue the success of the work undertaken by ECAS and see a further reduction in the number of FOG related incidents seen within the region, ECAS have been asked to investigate a further 700 FSE’s during the 2020/21 financial year. Although COVID-19 delayed the start of this work, ECAS are confident in achieving their targets. By expanding the remit of the project there is the belief that we will see a drastic reduction in the amount of FOG being discharged into the public network.

Success story - Glastonbury supermarket

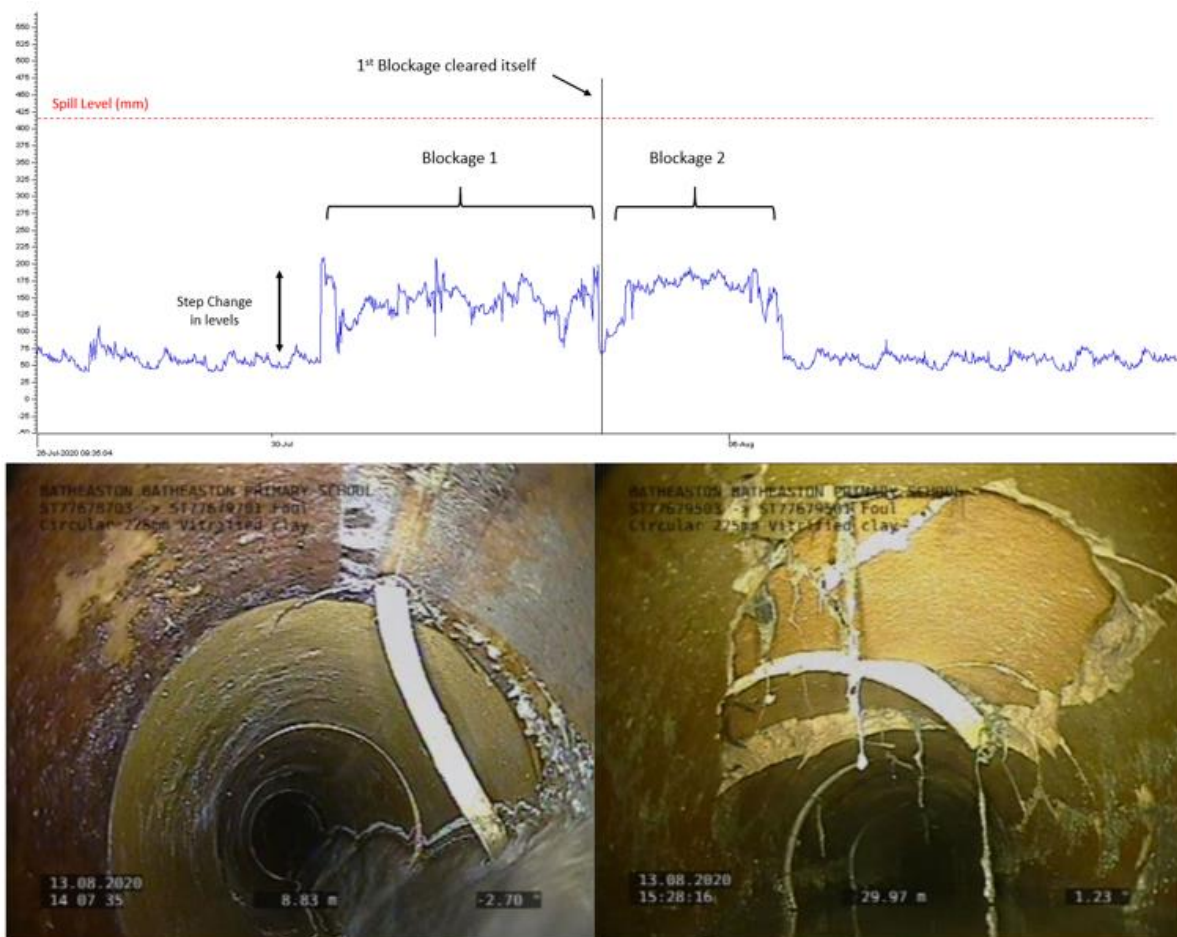
Since 2016 Wessex have attended and dealt with 6 separate incidents of backing up and flooding downstream of the supermarket. During each visit sewerage crews identified that the root cause for these blockages was FOG entering the public sewer from the supermarket and its on-site café. During each visit the supermarkets manager was advised that the supermarket did not have a grease prevention unit in places and should consider installing one to prevent further incidents, but the supermarket failed to adhere to this advice.



Following the latest incident in February 2020, which was a further blockage caused by FOG, the supermarket's details were given to ECAS. ECAS identified the supermarket as the root cause of the blockages and noted no grease management system in place when they visited. Following several months and meetings the supermarket agreed to install a compliant grease trap at the end of September. Following the installation of the grease ongoing monitoring will commence to ensure that the trap is being correctly maintained. Due to the length of time taken by the supermarket to become compliant they agreed and have settled a recharge for £4060 in relation to the expense Wessex Water has incurred in dealing with the incidents. This work will reduce blockages of the sewer due to FOG from the supermarket and reduce the risk of a possible pollution.

2.3.2 Bath in-sewer monitoring trial

On 3rd August one of the companies involved in the Bath In-sewer Trial identified a potential partial blockage downstream of 16757 Batheaston Mill House Combined Sewer Overflow (CSO), as levels at the CSO had begun to rise outside of the normal parameters. A sewerage crew was alerted to the potential blockage but before they could attend the blockage had cleared itself. However, a second blockage quickly occurred, and levels remained high at the CSO. Due to the quick succession of blockages at the site CCTV was arranged to establish if there was a defect downstream which was triggering the blockages. The CCTV showed that there was approximately 200m of settled debris downstream of the overflow, which has now been removed and two sealing rings hanging from joints downstream. All of these may have contributed to the two blockages. We have now organised for these to be removed and a patch liner placed over one of the defects identified.



Incidents like this give us confidence that the In-sewer monitoring trial is producing reliable information that, if demonstrated to be cost-beneficial, could be scaled up across the region and used to help reduce pollution and sewer flooding incidents.

2.3.3 Pump Optimisation

We continue to invest in the monitoring of Sewage Pumping Stations and machine learning tools to help us analyse performance data. The active monitoring of these sites allows us to respond quickly and efficiently to any issues detected to avoid potential pollutions.

Following the continual monitoring of these new sites, we have identified several sites with issues that have required upgrades to either their pumps or impellers, to achieve the required consented flows. Without this monitoring programme it is unlikely that these issues would have been detected so quickly and these sites may have been at risk of potential pollutions if they were left unresolved.

More sites continue to be added to the list as flowmeters are installed as part of the Burst Detection Monitoring programme.

2.3.4 Water Guardians

Recruitment for the Water Guardian Project, which is being run in partnership with Somerset Wildlife Trust, began at the end of September and so far, there has been a lot of interest from members of the public. The aim of the project is to recruit and train 25 Water Guardians to monitor watercourses, identify possible pollution incidents and report them to Wessex Water for further investigation. Initially the project will focus on the Brue Valley catchment area within the Somerset Levels and Moors, particularly areas near Wessex Water assets, pollution hotspot and environmental areas of interest/importance.

We are confident that this project will help us to identify potential pollutions quickly in remote locations, as well as increase our community engagement. If this project is successful there is the potential that we could use this as a template to be expanded across the region.

2.3.5 Training and Equipment

So far this year blockages remain the dominant cause of both pollution and flooding incidents. To help improve how we respond and deal with blockages we are in the process of constructing a training jetting unit which will be used to deliver a consistent approach when training new and existing staff.

In addition to this we have also invested in a new CCTV rig with upgraded “remote” capabilities, which means we will now be able to access and inspect more remote sewer locations. By expanding our capability to inspect more of our sewerage network, we hope to increase the detection of potential defects through our proactive CCTV programme and in turn reduce our foul network pollutions.

2.4 Pollution incident tracker

The graph below shows pollution incidents for 2020 up to the end of September:

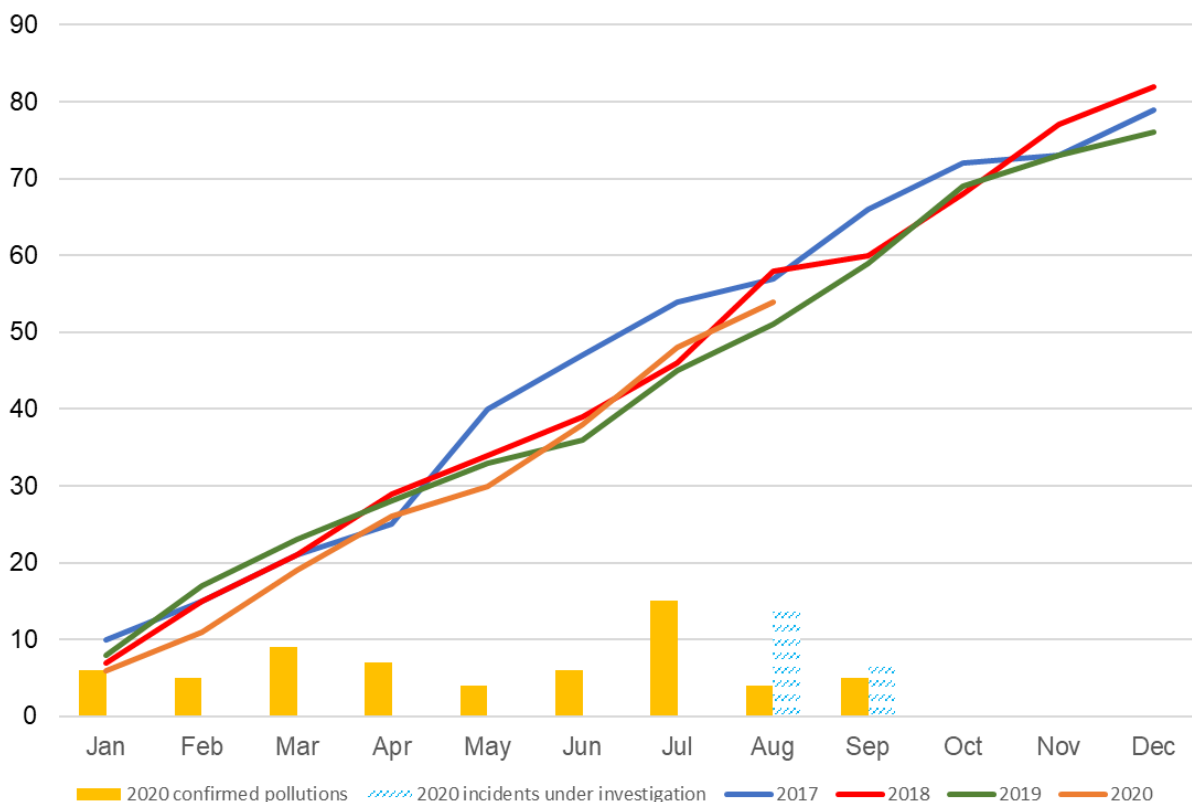


Table 1: Cumulative number of Category 1-3 incidents from wastewater assets

2.5 Q3 review of PIRP effectiveness

A huge number of initiatives, additional investment and greater management focus have, so far, not made a material impact on overall pollution numbers. This is a long-term strategy which will bring benefits in the future.

The root causes of the 2020 incidents to date are shown below:

Root cause	Number (Jan - September 2020)
Blockage	29
Burst rising main	9
Poor effluent quality (within permit)	6
Pump failure	3
Hydraulic overload	3
Other	3
Structural failure	2
Power supply failure	3
Operator error	2