



South West
Water

Pollution Incident Reduction Plan

December 2020 Update



[southwestwater.co.uk](https://www.southwestwater.co.uk)

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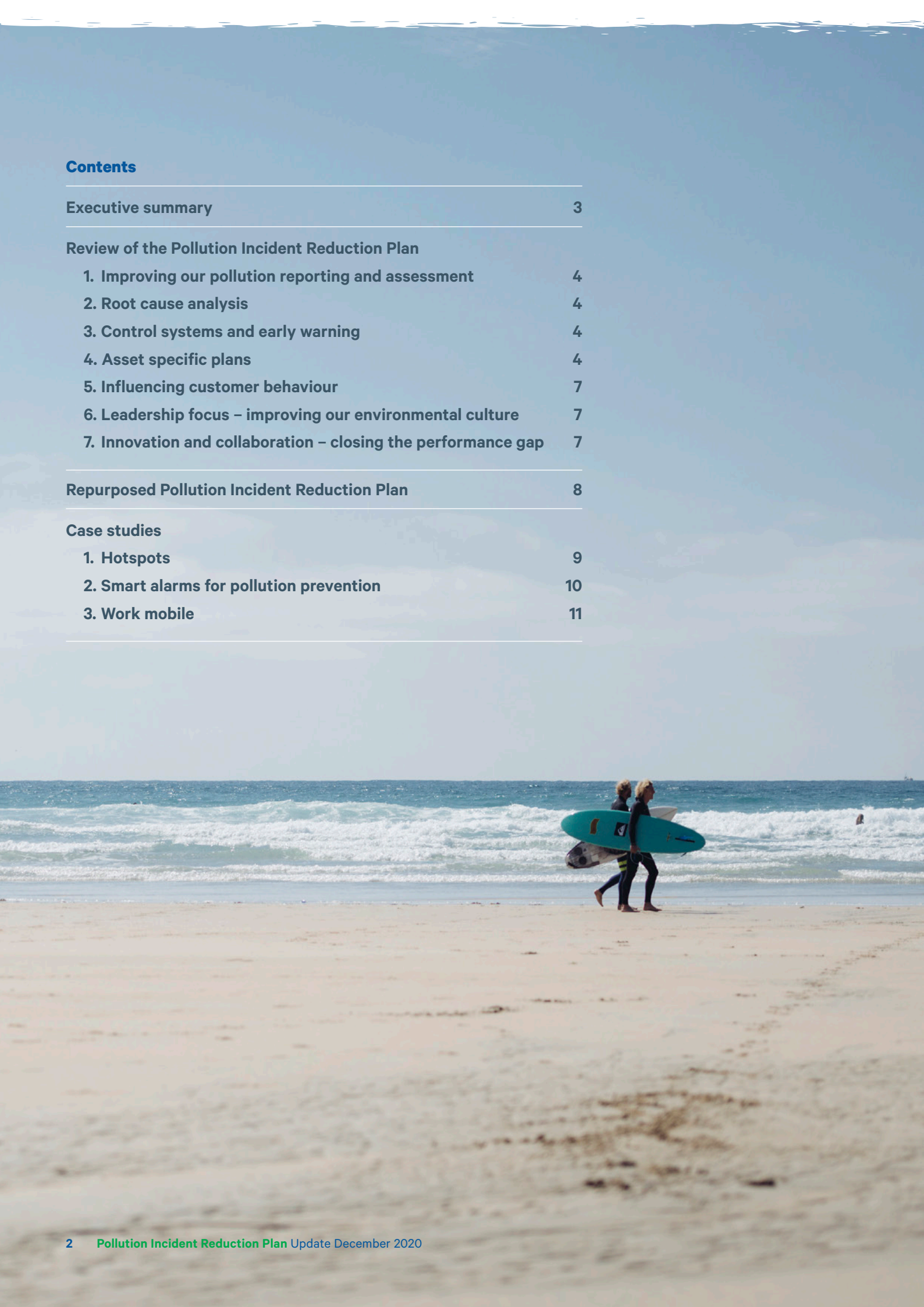
Review of the Pollution Incident Reduction Plan

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Executive summary

It has been a challenging year for a number of reasons, not least the Covid-19 pandemic and consequential impact on our business. Our people and teams have worked tirelessly to continue to provide the services our customers depend on. We have adapted our working practices to ensure our people can continue to provide the essential services our customers depend on in a Covid-19 safe and secure way.

Nevertheless, we have to acknowledge that some of the activities targeted in our Pollution Incident Reduction Plan (PIRP) haven't delivered the speed of improvements targeted. Our performance so far this year is well below the standards we demand of ourselves.

Whilst we are not stopping any of the activities within the PIRP, we are refocusing effort on those activities delivering greatest benefit. We have intervened and restructured our operation, established a new wastewater leadership team and aligned our business to improving our environmental performance. Alongside the health, safety and well being of our people, this is our number one priority.

7 days a week our CEO leads a 'Pollutions Board' meeting with members of the Executive Team and wastewater leadership team. This incident mode demonstrates our commitment to improve our performance and will continue for as long as it needs to.

This has already helped drive a renewed focus on pollutions and some notable signs of improvements including our lowest number of Category 1-3 pollutions in a single month this year for October.

Review of the Pollution Incident Reduction Plan

We continually flex our actions set out in the PIRP to manage any changes in risk profile across our operation.

We monitor and review our plan on a weekly basis as part of the CEO chaired ‘Pollutions Board’ meeting and re-prioritise different activities within the overall plan accordingly. A summary of our review of our initial PIRP published earlier this year is summarised below.

1. Improving our pollution reporting and environment

ON TRACK

We always aim to ensure our pollutions reporting meets Environment Agency (EA) guidance requirements and expectations. Enhancements to existing processes targeted in the PIRP have largely been delivered, including:

- ✓ Establishment of a combined water and wastewater 24 hour service and data centre from 1 October 2020
- ✓ 24/7 monitoring of data for early warning of and response to pollutions
- ✓ Extended hours of operation seven days a week to support our response to pollutions.

In addition to these activities which are on-going the following activities will supplement our programme to reduce pollutions:

- Establishment of water ranger teams – this will be done once the Covid-19 pandemic allows
- Installation of sewer depth monitors – this is being accelerated as part of our refocused PIRP from 1 December 2020
- Signage at outfalls of our Combines Sewer Overflows (CSOs) – a dedicated resource plan has been established to undertake this activity as well as displaying new permit QR codes at all of our sites from 1 January 2021.

2. Root cause analysis

ON TRACK

Our root cause analysis (RCA) tool has been effective in routinely reviewing all incidents to understand what interventions are required to prevent the specific incident occurring again and also the application of any learning to other asset groups and /or sites. One key aspect this has helped to influence has been on pump stations where we now have a zero pump out strategy so that any pump failures do not result in pollution events. A key part of the strategy is pump stock and a dedicated maintenance team resourced to undertake routine maintenance and annual service /MOTs.

Whilst the tool has proved effective we have supplemented this with the establishment of a Pollutions Investigation Team responsible for reviewing all pollution incidents within 48 hours. RCA reports are produced and submitted to an Exec led Pollutions Working Group for discussion before final review at our daily Pollutions Board.

We are deploying a new app (Work Mobile) that enables standard collection of information and evidence of the pollution incident to submit to the EA in a timely fashion, this also enables effective RCA to be undertaken and the swift identification of the solution to be identified to reduce the risk of the pollution repeating. A complete list of all actions resulting from the RCA is monitored at the Pollutions Working Group on a weekly basis.

RCA has been undertaken on all of our pollution incidents from 1 January 2018. This analysis has identified 191 'hotspots' across our operation region that have the most propensity to pollute. This review has developed short term operational mitigation plans and longer term capital interventions to reduce the risk of pollution incidents at those sites. A 12 month operational and capital intervention programme has been created and will be completed by 31 December 2021.

3. Control systems and early warning

ON TRACK

Internal organisational changes have enabled the consolidation of our 24/7 water and wastewater alarms and data monitoring teams. This team is responsible for monitoring all data feeds across our organisation to ensure that we respond to potential pollution incidents as quickly as possible 24 hours a day, 7 days a week.

The use of Event Duration Monitors (EDMs) and flow data is an increasing area of operational focus. With the amalgamation of roles and responsibilities across our operation we have aligned a single approach across water and wastewater. This has resulted in the establishment of a 24 hour data monitoring and service centre to enable immediate responses and escalation of potential incidents before they occur. We have also aligned the expertise across the business into the function so there is clear line of sight and no hand offs delaying delivery.

Identifying early warnings of potential pollution is central to this work stream. When potential risks are identified resources are mobilised so that we can be on site within two hours of identification. Additional recruitment in our workforce and investment in our supply chain has been made to ensure we can respond to any event within two hours. This approach has proven incredibly effective within the water business during with rapid response to potential burst events improving supply interruption performance by 50% during 2020/21.

Investment in an enhanced network operational contract across our water and wastewater businesses gives our workforce the confidence that pollution incidents will be responded to quickly with all of the necessary tools and equipment to ensure pollution incidents can be managed effectively.

4. Asset specific plans

FOCUS AREA

A core theme of our PIRP is to address known risks. As noted earlier, we have identified 191 'hot spot' sites (wastewater treatment works, pumping stations and networks) across our operational areas that have the propensity to pollute and our analysis predicts that resolving these risks will result in a reduction of c. 85 pollutions from current levels.

Area 1 (West Cornwall) is one of our most challenging operating areas, with a high number of pollutions occurring in this area. As such we have initially focused on understanding what interventions are required to address those risks.

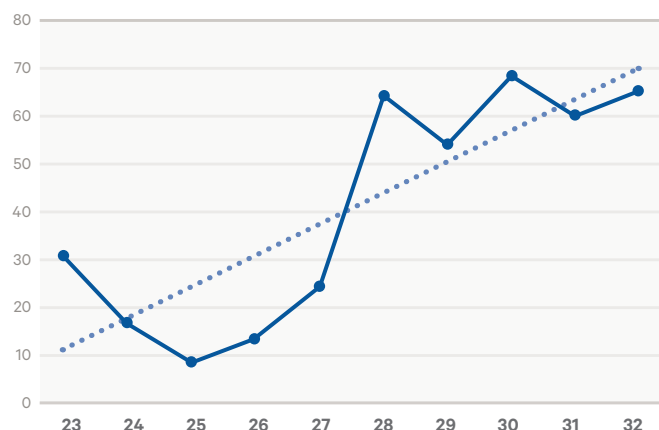
Outside of Area 1 we are rapidly developing the packages of interventions required at the remaining hot spot sites and will share these with the EA to ensure they meet expectations. We plan to roll out packages of work across the remainder of the five areas (this does not however detract from required interventions as they may arise in other areas that we will need to respond to).

Alongside the hotspot programme we have reviewed the outcomes against the PIRP and solidified our approach to Sewage Pumping Stations (SPSs) maintenance and operation. The key elements of this approach are outlined below.

- **We are establishing an integrated cross functional SPS project team made up of staff from across the business involved in SPS investment and investigation.** This team will ensure all SPS investment streams are aligned to legislative commitments and pollution needs and that all staff engaged in SPS activities are working to one objective. This will also ensure we are agile to respond to emerging needs on SPS to reduce pollution risks

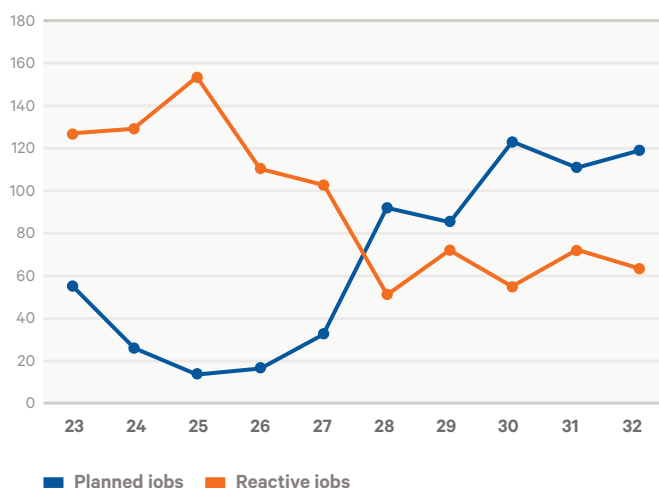
- **Establish additional two person gangs to maintain SPS across the region through additional SPS operative resources.** We are in the process of recruiting an additional 30 SPS support operatives across the operational area to align with our existing internal workforce and move to a proactive two person maintenance programme where on average we are looking to complete a minor service and inspection every six weeks. Some stations will be serviced more frequently, and this is expected to change throughout the seasons based on demand and risk. With this approach we are looking to migrate to a 70% planned /30% reactive work pattern which will reduce the reactive risk of failure at all SPS.
- This has been supported by the outputs of the piloting we have been doing in Area 1 where the percentage of additional planned work is continually climbing and consistently being above 60% as outlined in the chart below.

SPS planned work – Area 1 per week (%)



- This increase in planned work has had a subsequent impact on the number of reactive jobs.

Area 1 SPS – Number of planned and reactive WOs trended



- **Ensure resilience within the Wastewater Complex Maintenance Team.** Working with the supply chain we will ensure enough resources are available to provide effective response to SPS risks and further works identified through the routine maintenance programmes. This will ensure delays in instigating capital repairs are minimised and lines of sight and communication pathways are clear.
- **Review of our contracts with the supply chain** to achieve delivery times on spares, consignment and strategic stock in addition to materials and equipment that align with our ambition to minimise the time when pumping capacity is compromised.
- **Revise Technical Standard 418 (SPS).** To align with enhanced reliability and to include remote reset capability, flow metering, alarm establishment, enhanced control and processes. This will help reduce the risk of spills from SPS whilst our teams are mobilised to site. Our Catchment Pilots within our area-based Field Support Centres and our Central team within the Service Support Centre will provide 24/7/365 coverage and remote monitoring and intervention capability.
- **Revise pump install base.** We have completed a risk review of our SPS asset and catchments that feed them, completing an industry recognised and independently verified risk assessment. Further work will progress to finalise the site-specific reviews and certify declassification, which will align with our ambition to streamline the pump install base to meet our ambition to reduce down time. In addition, we are looking to specify hardened impellers on all suitable SPS under our revised contractual arrangements with pump suppliers. Hardened impellers have been seen to reduce energy consumption, maximise solids mobilisation and in turn reduce blockage risk. We are at early stages in these discussions with our suppliers and aim to have new supply contracts in place from April 2021.
- **Leading metrics.** Our Data Centre within the Service Support Centre will look to develop our use of algorithms that provide early warning of asset trends before traditional alarms. These include metrics such as modelled flow into wastewater treatment works, pass forward and power consumption benchmarking, SPS rise rates and CBM data. Being able to analyse these with more enhanced weather forecast data we will target early warning and mobilisation to reduce the risk of pollutions occurring.

5. Influencing customer behaviour

ON TRACK

Customer behaviour influences the performance of our assets and working with our customers on the impact of their behaviour is essential in addressing pollution risks over the longer term. Whilst we are continuing to work on customer behaviour initiatives our immediate focus is on areas that are under more of our direct control (rather than trying to influence customer behaviour).

Following several pollutions resulting from poor practice from a minority of our customers we are embarking on a collaborative education programme with those customers. Whilst we do not want to take enforcement activity, as a last resort we will ensure we can protect the environment from pollutions.

6. Leadership focus – improving our environmental culture

BEING ACCELERATED



- We have established and implemented a new enhanced governance structure with clear line of sight of risks and mitigations.
- Chaired by the CEO, the Pollutions Board meets daily (Monday to Sunday) to review the progress on the delivery of the pollutions strategy, intervene and approve changes to the PIRP.
- Chaired by the Wastewater and Networks Director, the Pollution Working Group oversees the management of pollutions incidents and delivers the activities included in the pollutions strategy.
- Chaired by the Wastewater and Networks Director, the EA Contact Management Group ensures that all EA contacts received are replied to professionally within agreed timescales.

- Chaired by the Wastewater and Networks Director, the Pollution Investigation Team is responsible for investigating all pollution incidents so we can provide the EA all of the information and evidence they require and also to understand the root cause of the event.

The Pollutions Reporting Team is responsible for ensuring adherence to the 28 day reporting process (including 10 day No Impact Statements) agreed with the EA.

We believe that while asset performance and operational response are key to delivering an enhanced pollutions performance, leadership focus and organisational culture are critical.

Our dedicated employees are key to delivering the performance that our customers and stakeholders value and benefit from. Given the geography of our region, we rely on a dispersed workforce making good decisions. We are placing a renewed emphasis on leadership focus and organisational culture.

Building on the model used to deliver the HomeSafe campaign, we are developing a company wide culture, training and engagement programme for deployment from 1 January 2021 that is very clear on our environmental ambitions, the views of the EA, and the standards we expect every day. All delivered in a 'HomeSafe' way.

Alongside the wastewater leadership team a dedicated team will support the development of the culture, training and engagement plan in conjunction with the EA.

7. Innovation and collaboration – closing the performance gap

BEING ACCELERATED

We recognise the importance of sharing best practice across the industry and have strong ambition in this respect and are working on exciting projects which when developed enough can share more widely including predicting pollutions with the University of Exeter and real time river water quality monitoring.

We are engaging with the companies assessed as 4 star by the Environment Agency to share best practice. We are also part of a newly established Water UK led pollutions reduction task and finish group to improve industry performance on serious pollution incidents through sharing of business processes and innovations. We have also volunteered to work with BluPrint for Water on data transparency.

Repurposed Pollution Incident Reduction Plan

Based on our performance this year the activities delivered to date have had mixed success.

As a result we have intervened, re-prioritised and focused the investment on the activities within the PIRP driving noticeable improvements in our performance, in our direct control, where there is confidence over the outcome.

Our updated plan is refocused on:

- Accelerating our hot spot intervention plan across 191 hot spot sites so that these are addressed within 12 months.
- Implementing a modified pump station MOT initiative that is more focused on regular servicing through a new dedicated capital maintenance team. This team will be responsible for carrying out maintenance activities scheduled across all c.1,100 pumping stations. The maintenance schedule enables all pump stations to be maintained on average six times per year.
- Operational enhancements and investment in processes, systems and people enabling two hour response time to respond to potential or known pollution events e.g. 24 hour service and data centre.

The net impact of our performance to date this year and our re-invigorated approach to improving our pollutions performance means that our performance trajectory is expected to follow the following profile to our original commitment of 33 Cat 1 – 3 pollutions by 31 December 2024.

Ofwat PR19 Final Determination

		2020	2021	2022	2023	2024
STW number of cat 1-3 pollutions	→					
SPS number of cat 1-3 pollutions	→					
Network number of cat 1-3 pollutions	→					
Total number of cat 1-3 pollutions at year end	→	42	40	39	38	33
New approach and operational improvements	→		-14%	-21%	-23%	-30%
Primary 191 hotspots	→		-40%	0	0	0
Secondary hotspots	→		0	-26%	0	0
EPA Rating	→	2*	2*	2*	3*	4*

Case studies

Case study 1

Hotspots

Calstock / Harewood Road

- Enhanced cleansing schedule for sewer and inlet works in place.
- Grit traps and separation works on the two steep feeder roads into Calstock to be fast tracked for delivery.
- CSO signalling improvements and electro-slide recalibration to be fast tracked for delivery.
- Options to replace sewer in Harewood Road or install new pumping station at Calstock wastewater treatment works inlet works.
- Above will address poor hydraulic gradient into the wastewater treatment works.
- Met EA on 1 December to discuss options and delivery timescales.
- South West Water committed to implementing long term solution which captures all issues in the area.
- Schemes to be implemented ASAP subject to agreement and relevant planning / permits.

Ruzza

- Five Category 1-3 pollution incidents since 2015.
- Recent issue with operation of the air release valve on the rising main, air-locking and unable to pass forward flow.
- The air release valve has been replaced and control system investigated.
- Modifications have been made to the back-up control system to minimise the risk of recurrence.
- Also as part of our enhancement programme, funding for the installation of additional storage has been agreed and this is being scoped for delivery.
- The SPS is on an ongoing maintenance programme under the Pollution Incident Reduction Plan.



Case studies

Case study 2

Smart alarms for pollution prevention

What are 'smart' alarms?

Smart alarms use flow and storage levels to predict when a non compliant overflow may occur.

What is the aim of this signal?

To provide one signal that informs the control room and the operators that there is an issue which could lead to a pollution and must not be ignored.

What are they called?

The new signal is called 'Predicted Non Compliant Overflow'.

How are they configured?

Looking at historic trends for flow rates and storage levels are used to determine the best response time to a potential issue. Ideally this is a minimum of 1 hour and 45 minutes. This allows the 45 minutes in the control room to respond to a P2 alarm and 1 hour for an operator to attend.

Each signal is site specific, that is we have chosen flow rates and storage levels that fit the trend for that site. We have not used generic rates or levels as each site is different. For example 75% of PFF and 50% of storage used would give a different response time at each site and may not provide enough time to react.

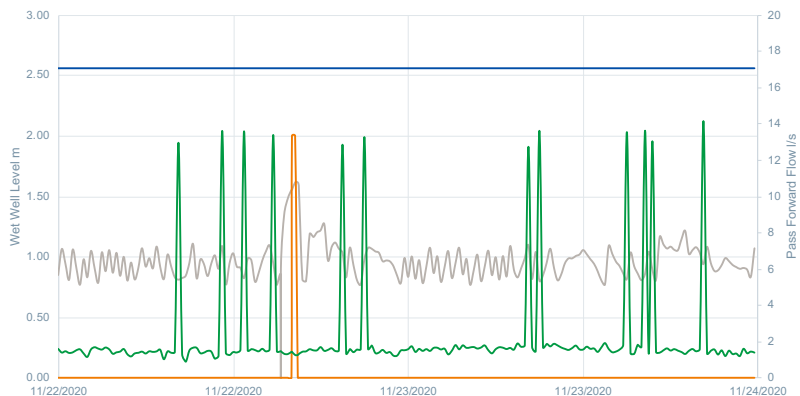
What are they replacing?

Generic High level and Low flow alarms, Compliant overflow events and non-compliant overflow alarms.

- The project started in mid September 2020.
- Alarms are being configured on all pumping stations and wastewater treatment works where the signals for flow and storage are available.
- Do date two technicians and one Scada technician have configured 180 alarms across areas 1 to 4, areas 5 and 6 are yet to be started.
- Weekly progress meetings are held every Friday.
- At the last review session held 27 November the list of sites that had an predicted non compliant overflow alarm in the past week was reviewed in full. Up until last week the session had been used to discuss problems with configurations.
- From the list of sites there were two assets where a pollution was prevented in the period 21 to 27 November 2020 included.

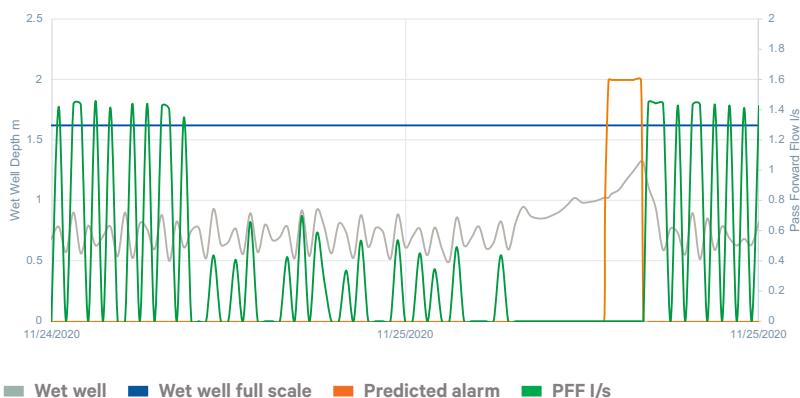
Quenchell SPS – pollution prevented 25 Nov 2020

The trend below indicates where a multiple pump failure occurred at Quenchwell SPS and where the new smart alarm announced preventing a pollution from occurring.



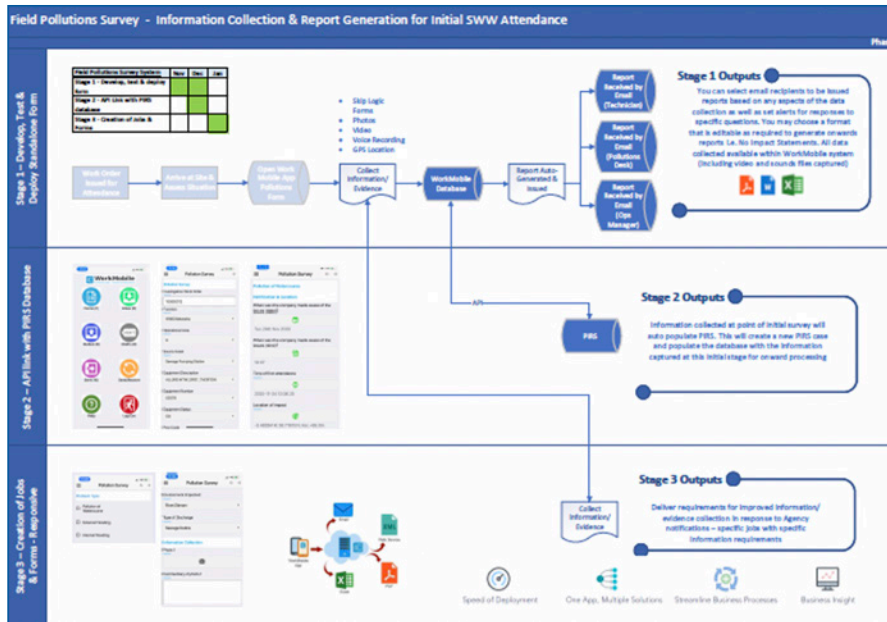
Lezant SPS – pollution prevented 25 Nov 2020

The trend below indicates where a multiple pump failure occurred at Lezant SPS and where the new smart alarm announced preventing a pollution from occurring.



Case study 3 Work mobile

- We have transferred our field event log process from water to wastewater.
- Using an app on their phone all of our workforce are required to capture various information (including photos before and after) from the event in real time to our 24 hour service and data centre.
- Enables evidence and information to be collected for quicker resolution and provision of information to the EA.
- This disciplined approach to responding to pollution events is being rolled out to the team and contractors during December.
- This approach helped transform our supply interruptions performance within our water business.



Investigation Area Code: 00001	Location: 00000000
Investigation Area: 00000000	Police Station: 00000000
Equipment Description: 00000000 (00000000)	Equipment Number: 0000
Equipment Status: 000	Post Date: 00/00/00
Location Ref: 00000000	Equipment Name: 000

Problem Type	
Problem of Concern	<input checked="" type="checkbox"/>
General Problem	<input type="checkbox"/>
Internal Problem	<input type="checkbox"/>

Pollution of Wastewater	
Where was the company made aware of the incident? <input type="checkbox"/> 1100 <input type="checkbox"/> 9999 0000	
Date of first attendance: 00/00/00 00:00:00	Number of locations: 00
Location of incident:	Description of location: This field is intended to be used on the way through the system as you see it in the field.
Equipment involved: 00000000	Type of discharge: 00000000

Illustration Evidence	
Photo 1:	Photo 2:
Comments: Terrain photograph of road surface condition	Comments: Photograph of road surface showing holes

Photo 1:	Photo 2:
Comments: Address photograph of road surface condition	Comments: Photo of road surface
Photo Priority: 00000000	Auto Recording: 00000000

Links Your Party Involves: 00	Your Party Type: 00000000
Any other information:	

Root Cause Initial Diagnosis	
Exhaust Overload	<input checked="" type="checkbox"/>
Power Failure	<input type="checkbox"/>
Gas Pressure - Not Permitted Press	<input type="checkbox"/>
Oil Leakage	<input type="checkbox"/>
Blow	<input type="checkbox"/>
Other	<input type="checkbox"/>

Actions to Resolve	
Is this an active case?	<input checked="" type="checkbox"/>
Has action been taken to eliminate the problem?	<input type="checkbox"/>
Has the action been taken to prevent the problem from re-occurring?	<input type="checkbox"/>

Completion of Job	
Control of information collection as required:	<input checked="" type="checkbox"/>
Date and time taken of completion of job:	00/00/00 00:00:00

*Please - additional information presented on report dependent on problem type, whether the personnel were able to resolve the problem and the cause of any pollution. The report will also include the names of the person who completed the form and advice link direct to the site and record the case.



**South West
Water**