

Company	Event Date	Duration (hours)	ERI Score	Affected Location and Area of Supply	Estimate of Population	Description	Main Actions from the Inspectorate's Investigation	Final Seriousness	Commentary
Northumbrian Water Ltd	10 Oct 2019	648	3,297	Whittle Dene works which supplies parts of Newcastle, Gateshead and South Tyneside	659,835	Cryptosporidium in Final Water	Enforcement-legal instrument	Risk of contamination (route of ingress identified) Treatment issues - potential Reg 26 breach	See case study in Events section of CIR2019 for England
United Utilities Water Plc	01 Mar 2019	600	1,230	Oswestry works which supplies Cheshire and Merseyside	1,236,230	Cryptosporidium in Final Water	Recommendations made	Risk of contamination (route of ingress identified) Confirmed faecal (E.coli or Enterococci) microbiology or Cryptosporidium Failure Risk of illness (unconfirmed) attributed to the water supply	See case study in Events section of CIR2019 for England
Southern Water Services Ltd	08 Nov 2019	456	734	Testwood works which supplies Southampton and the Isle of Wight	256,408	E.coli detected in the final water	Enforcement-legal instrument	Confirmed faecal (E.coli or Enterococci) microbiology or Cryptosporidium Failure	See case study in Events section of CIR2019 for England
Thames Water Utilities Ltd	16 Jan 2019	96	518	Hampton works which supplies Greater London via the London ring main	4,607,131	Raw water deterioration causing Cryptosporidium in final water	Recommendations made	Non-faecal microbiological failure Confirmed faecal (E.coli or Enterococci) microbiology or Cryptosporidium Failure	See case study in Events section of CIR2019 for England
Northumbrian Water Ltd	20 Aug 2019	192	455	Lumley works which supplies parts of Washington, East Durham, Sunderland, Houghton-le-Spring in County Durham	307,270	Cryptosporidium in Final Water	Enforcement-legal instrument	Treatment issues - potential Reg 26 breach Confirmed faecal (E.coli or	See case study in Events section of CIR2019 for England
Thames Water Utilities Ltd	01 May 2019	72	433	Kempton works which supplies Greater London via the London ring main	4,106,575	Structural defects in slow sand filters caused by poor construction and maintenance caused chironomid larvae in final treated water.	Recommendations made	Treatment issues - potential Reg 26 breach	See case study in Events section of CIR2019 for England
Southern Water Services Ltd	15 Feb 2019	79	322	Hardham works which supplies areas in West Sussex	519,328	Failure of the ozonation plant	Enforcement-legal instrument	Treatment issues - potential Reg 26 breach	See case study in Events section of CIR2019 for England
Affinity Water Ltd	12 Sep 2019	1,776	320	Primrose works which supplies Dover in Kent	45,432	Failure of the Ultra Violet Disinfection System	Recommendations made	Treatment issues - potential Reg 26 breach	See case study in Events section of CIR2019 for England
United Utilities Water Plc	10 Nov 2019	600	221	Wybersley works which supplies Stockport and Macclesfield	295,692	Failure to follow company procedures compromised the performance of the coagulation process	Recommendations made	Treatment issues - no expected Reg 26 breach Non-toxic chemical parameter failure	See case study in Events section of CIR2019 for England
Severn Trent Water Ltd	03 Jan 2019	72	180	Strensham works which supplies Worcester, parts of South Warwickshire and Coventry	983,493	E.coli and Enterococci detected in the final water caused by structural defects in the contact tank	Enforcement-legal instrument	Risk of contamination (route of ingress identified) Treatment issues - potential Reg 26 breach Non-faecal microbiological failure Confirmed faecal (E.coli or Enterococci) microbiology or Cryptosporidium Failure	See case study in Events section of CIR2019 for England
South West Water Ltd	18 Oct 2019	96	168	Crownhill works which supplies Plymouth and the surrounding area	204,000	Cryptosporidium in Final Water caused by a change in raw water quality which compromised the performance of the coagulation and clarification process	Recommendations made	Treatment issues - potential Reg 26 breach Confirmed faecal (E.coli or Enterococci) microbiology or Cryptosporidium Failure	There were two non-consecutive detections of Cryptosporidium oocysts in continuously filtered compressed foam pad samples at Crownhill works, on 15 and 18 October 2019, following a change to the raw water pH. This change was caused by commissioning work at the company's Mayflower works which abstracts water from Burrator Reservoir and the River Tamar upstream of Crownhill. During the commissioning work, water with high pH was discharged into the river whilst Mayflower works was running to waste. This affected the pH of the raw water at Crown Hill, which compromised the effectiveness of the coagulation and clarification process leading to Cryptosporidium oocysts passing through the treatment process. The company made changes at Mayflower works to prevent a recurrence.
Severn Trent Water Ltd	15 Feb 2019	72	144	Strensham works which supplies Worcester, parts of South Warwickshire and Coventry	983,493	E.coli detected in the final water caused by structural defects in the contact tank	Enforcement-legal instrument	Risk of contamination (route of ingress identified) Confirmed faecal (E.coli or Enterococci) microbiology or	See case study in Events section of CIR2019 for England

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South West Water Ltd	11 Jun 2019	108	101	Crownhill works which supplies Plymouth and the surrounding area	204,000	Use of powdered activated carbon that was not approved for use in contact with drinking water	Prosecution considered	Regulation 31 breach no impact on water quality	A batch of powdered activated carbon (PAC) that did not comply with the published BS:EN for PAC was accepted for use at Crownhill works. This is a breach of regulation 31, which may be an offence. The PAC was subsequently used in the treatment process. It was found that the PAC was a food-grade product, and therefore there was no adverse effect on drinking water quality as a consequence. The Inspectorate has previously issued advice to companies about the importance of having stringent procedures in place for accepting chemical deliveries and ensuring that chemicals used comply with published BS:EN standards, and the company failed to ensure that basic checks were carried out on consignments of chemicals accepted at the works. The company has improved its procedures and carried out refresher training.
Southern Water Services Ltd	12 Mar 2019	487	94	Alvington service reservoir, Carisbrooke, Isle of Wight	82,192	Ingress into Service Reservoir caused the detection of indicator bacteria in water supplied to consumers	Recommendations made	Risk of contamination (route of ingress identified)	During a flood test of the West compartment of the reservoir, which was out of supply for cleaning and repair, a risk of ingress was identified. The company implemented enhanced monitoring for bacteriological parameters in the supply system, and some samples taken from consumers' taps and downstream service reservoirs contained coliform bacteria and <i>Clostridium perfringens</i> . Repairs were completed and the compartment was returned to supply.
South East Water Plc	25 Oct 2019	360	91	Hazards Green works which supplies Bexhill-on-Sea, East Sussex	47,013	Deterioration of raw water quality and poor operational and maintenance practices at Hazards Green works caused unacceptable taste and odour in water supplied to consumers	Enforcement-legal instrument	Treatment issues - no expected Reg 26 breach Taste or odour Discolouration Local media interest - Related to WQ or sufficiency Media interest - Local media or social media coverage related to WQ or sufficiency	Hazards Green works abstracts water from Darwell Reservoir which is owned by Southern Water and from Wallers Haven River. The company switched off the river abstraction because of deteriorating quality so that the raw water supply to the works was from Darwell Reservoir, but subsequent inadequately controlled reinstatement and switching off the river abstraction caused a deterioration in the performance of the clarification process. This caused earthy and musty tastes and odours in water supplied to consumers. The company received 26 complaints from consumers reporting an unacceptable taste or odour. The Inspectorate found that the GAC treatment on the works was not being operated in accordance with recognised good practice, and in one adsorber the carbon had not been replaced for more than 11 years. The Inspectorate has issued a regulation 28 Notice requiring the company to make improvements at the works to prevent a recurrence.
Portsmouth Water Plc	13 Dec 2019	24	90	West Street works which supplies Gosport, Fareham, Wickham, West Meon, Soberton, Waterlooville and Bishops Waltham.	222,203	Deterioration of raw water quality led to Cryptosporidium detection in final water	Recommendations made	Confirmed faecal (E.coli or Enterococci) microbiology or Cryptosporidium Failure	West Street works is continuously sampled for Cryptosporidium because of an identified risk of oocysts being detected. The works does not have any barrier treatment processes in place to remove or inactivate Cryptosporidium. Two oocysts were detected in a foam pad filter in place from 12 to 13 December 2019. The company shut down the treatment works in response, and plans to install additional turbidity monitoring and a rain gauge with automatic shutdown so that the works shuts down when there is an increased risk to raw water quality.
Severn Trent Water Ltd	22 Jan 2019	24	84	Frankley works which supplies Birmingham	1,380,176	E.coli detected in the final water caused by ingress into the contact tank	Enforcement-legal instrument	Risk of contamination (route of ingress identified) Treatment issues - potential Reg 26 breach Confirmed faecal (E.coli or	The company carries out enhanced monitoring for microbiological parameters at Frankley works because of a history of E.coli being detected in the final water. A one-litre sample taken on 22 January was found to contain E.coli. The company's investigations identified a route of ingress into one of the contact tanks at Frankley. The company commenced a scheme to repair the structural defects.
Bristol Water Plc	06 Jul 2019	74	84	Littleton works which supplies parts of Gloucestershire	114,295	Bromate detected above the PCV in final water caused by deterioration of raw water quality	Recommendations made	Health related chemical parameter failure	Littleton works has ozone treatment in place for pesticide removal. There is a known risk of Bromate exceeding the PCV at this works because of the quality of the water in the Gloucester-Sharpness Canal, which is one of the raw water sources. The company carries out enhanced monitoring for bromate in the final water, and an operational sample taken on 6 July 2019 contained 11.8mg/l of bromate, which exceeded the statutory limit of 10.0 mg/l. The company was aware of the risk from bromate formation and had developed an operating plan to mitigate this risk, but on this occasion the procedure did not prevent the exceedance. The company has since revised the procedure

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Southern Water Services Ltd	17 Jul 2019	26	79	Burham works which supplies the Medway district of Kent	386,122	Failure of disinfection process at Burham works	Enforcement-legal instrument	Treatment issues - potential Reg 26 breach	Following a power failure at Burham works and subsequent shut down on 16 July 2019, the company attempted to restart the works, which involved running the works to waste until water quality had stabilised and quality parameters were within normal limits. However 1,280 cubic metres (m³) of unchlorinated water entered the contact tank during the run to waste operation. Following a risk assessment, the company concluded that water supplied from the works would meet minimum disinfection requirements, and it was subsequently released into supply. Investigations subsequently identified a faulty valve on the inlet to this tank. Burham works is currently subject to the requirements of a regulation 28 Notice reference SRN-2019-00007 requiring refurbishment of the contact tank, pumps and monitoring equipment by 31 March 2025. The work required to repair the valves and other defects which led to this event will be completed by December 2022.
Southern Water Services Ltd	11 May 2019	24	73	Burham works which supplies the Medway district of Kent	386,122	Ozone plant failure at Burham works	Enforcement-legal instrument	Treatment issues - potential Reg 26 breach Treatment issues - no expected Reg 26 breach	Burham works has ozone treatment in place for pesticide removal. On 11 May 2019 a power cut caused the works to shutdown. The company was unable to successfully restart the ozone plant, because of various faults which had been left unresolved for a long period of time. Although there were no failures of any pesticides or other parameters in the final water, the Inspectorate considered that the company's risk assessment of the effectiveness of the GAC process was flawed. Works to improve the ozone plant are included in the regulation 28 Notice (SRN-2019-00007).
Portsmouth Water Plc	13 Dec 2019	24	67	River Itchen works which supplies Gosport, Fareham, West Meon, Bishops Waltham, Waterloooville, Wickham	222,203	Isoproturon contamination of the raw water at River Itchen works	Recommendations made	Risk of contamination (route of ingress identified) Non-toxic chemical parameter failure	On 14 November 2019 the operator of a private water supply in Gosport, which imports water from Portsmouth Water, identified 0.147 mg/l of the pesticide isoproturon in a sample of the imported water. The statutory limit for single pesticide compounds is 0.1 mg/l. Portsmouth Water was notified of this failure on 5 December, and commenced investigational sampling at River Itchen works and its associated supply system. Elevated concentrations of isoproturon were detected in some samples, but none exceeded the PCV. Isoproturon is banned for use in England, and the failure was attributed to illegal usage or disposal of this chemical in the river catchment. The company has regenerated the activated carbon used in the GAC process. River Itchen works supplies the local Waterloooville inset appointment and a bulk export to a neighbouring water supplier. The Inspectorate considered that Portsmouth Water did not notify the relevant suppliers as soon as possible after becoming aware of the exceedance, as required by regulation 18.
Thames Water Utilities Ltd	12 Jun 2019	264	50	Hampton WTW which supplies Greater London via the London ring main	215,060	Loss of supply to parts of south and west London caused when the works was shutdown because of flooding on site.	Recommendations made	Loss of supplies Non-toxic chemical parameter failure Media interest - National media interest in water sufficiency or quality	Hampton works is a critical works which supplies a large population of consumers in West London and other parts of Greater London via the London ring main. The works was shut down on 12 June because of flooding on the site. This caused an immediate loss of supply to more than 200,000 consumers. The company commenced work to restore supplies by rezoning the network and reconfiguring the outlet pipework at Hampton enabling the works to be restarted. Supplies were restored to most consumers within 8 hours. The Inspectorate was concerned that the cause of the flooding was defective engineering work carried out in the past, when a disused section of large-diameter main was not capped off, and large valves were not properly decommissioned. The flood was caused when an electrical fault caused a decommissioned valve to open. Thames Water is currently engaged with the Inspectorate in a transformation programme, and there are regulation 28 notices in place covering all of its major works. Actions required to prevent a recurrence of an event of this nature are included in these notices.
Southern Water Services Ltd	23 Jul 2019	24	48	Testwood works which supplies Southampton and the Isle of Wight	256,409	Chemical dosing failures, including loss of phosphate dosing for plumbosolvency control, increased the risk of unwholesome water being supplied to consumers	Enforcement-legal instrument	Treatment issues - potential Reg 26 breach Treatment issues - no expected Reg 26 breach Health related chemical parameter failure Presumptive faecal indicator result not confirmed Non-faecal microbiological failure Issue of do not drink advice	There were failures of three critical chemical dosing processes at Testwood works between 20 June and 8 August 2019: Powdered activated carbon (PAC) for taste and odour control, ferric chloride for coagulation and clarification and orthophosphoric acid dosing for plumbosolvency control. There was no measurable effect on final water quality as a consequence of the failures, but the Inspectorate made recommendations about the company's assessment of the risk to consumers from lead in the water supply, because of the loss of plumbosolvency control. The works is subject to the requirements of a regulation 28 notice, reference SRN3911, requiring major improvements to the treatment processes at Testwood, due for completion by 31 March 2025. These works include a full assessment of all chemical storage tanks and dosing instruments for ferric chloride, orthophosphoric acid, polyelectrolyte, bisulphite and hypochlorite and the powdered activated carbon (PAC) storage dosing system.
Northumbrian Water Ltd	30 Sep 2019	24	45	Lumley works which supplies parts of Washington, East Durham, Sunderland, Houghton-le-Spring in County Durham	307,270	Cryptosporidium in Final Water	Enforcement-legal instrument	Confirmed faecal (E.coli or Enterococci) microbiology or Cryptosporidium Failure	See case study in Events section of CIR 2019, England

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Bristol Water Plc	07 Mar 2019	73	34	Cheddar works which supplies Burnham-on-sea, Cheddar, Glastonbury and Street in Somerset	92,652	A decomposed animal was found in one of the treated water tanks after being emptied for cleaning	Recommendations made	Risk of contamination (route of ingress identified)	Decomposed remains of an animal were found in a treated water reservoir whilst undertaking cleaning. The company consulted with Public Health England, who confirmed that there was not a recorded increase in cases of cryptosporidiosis in the community. A point of entry through a duct in an abandoned kiosk was found, which the company repaired.
South West Water Ltd	24-Dec-18	24	27	Lowermoor works which supplies Camelford in Cornwall	99,800	Treatment plant failure at Lowermoor works	Prosecution considered	Treatment issues - potential Reg 26 breach	The event, which occurred in December 2018, was discovered by the Inspectorate during a technical audit in March 2019, and the company was subsequently asked to notify it. In the early hours of the morning on 22 December the works shutdown automatically because of a fault with the second-stage filters. The works was restarted with the filters bypassed, without any risk assessment or water quality checks. On 24 December an operator restarted the works, again without any risk assessment or water quality checks. Water with a high pH that had been standing in the second-stage filters passed into the contact tank. Because of the high pH this water also contained a high concentration of aluminium. The works was shut down, and the affected water was largely contained within the contact tank, which was drained before the works was restarted later that day. There was some evidence that unwholesome water was supplied from the works, but the company's investigation into this was found to be wholly inadequate. The Inspectorate identified a number of serious deficiencies with the company's response to the event, along with laboratory malpractice, inadequate maintenance procedures and a lack of investment at Lowermoor works. The Inspectorate has made 42 recommendations and is considering enforcement action to ensure that the company implements actions to prevent a recurrence.
Hafren Dyfrdwy	12 Sep 2019	96	25	Rhosllanerchrugog, Wrexham, Clywd	13,728	Discoloured water supplied to consumers following planned work in the distribution system	No recommendations or suggestions made	Non-toxic chemical parameter failure Non-faecal microbiological failure Discolouration Risk of illness (unconfirmed) attributed to the water supply	Planned work in the distribution system caused discoloured water to be supplied to consumers. Distribution mains were being cleaned using ice-pigging, as required by a regulation 28 Notice (HDC-2019-00005) issued by the Inspectorate in June 2019. The company attributed the discolouration to disturbance of deposits caused by changes in flow when the network configuration was changed to clean a length of unlined cast iron main. Operation of a fire hydrant by the Fire Service also caused an unexpected flow change which contributed to the issue.
Southern Water Services Ltd	01 Jan 2019	18	22	Burham works which supplies Medway district of Kent	384,723	Loss of polyacrylamide dosing caused manganese to exceed the operational limit in the final treated water	Enforcement-legal instrument	Treatment issues - no expected Reg 26 breach	South East Water detected elevated manganese (31.50 µg/l) in a sample taken from its bulk import from Southern Water's Burham works. Southern Water investigated the treatment process at Burham and found that dosing of polyelectrolyte (used as a coagulant aid) had stopped on one half of the treatment stream. This had caused an increase in clarified and filtered water turbidity. The polyelectrolyte dosing was reinstated. There was no impact on final disinfection. If online continuous monitoring for manganese had been in place, it is likely that this loss of chemical dosing would have been detected earlier, mitigating the risk to final water quality. Burham works is subject to the requirements of a regulation 28 Notice (SRN-2019-00007).
Thames Water Utilities Ltd	30 Jan 2019	72	21	Coppermills works and Woodford Service Reservoir which supply north London	748,231	Cryptosporidium in Final Water	No recommendations or suggestions made	Confirmed faecal (E.coli or Enterococci) microbiology or Cryptosporidium Failure	Because of a known risk of Cryptosporidium at Coppermills works, continuous filtration monitoring in place for Cryptosporidium using in situ compressed foam pad filters. One oocyst was detected in a foam pad filter, and subsequently one oocyst was detected in a large column sample at Woodfield service reservoir, downstream of Coppermills. Clostridium perfringens was also detected at the reservoir, and in one of the slow sand filter outlets at the works. The filter was removed from supply. The risks associated with the cause of the event are covered by a number of multi-site notices. These notices include a regulation 27(4) notice requiring all of the company's catchments risk assessments to be reviewed, a regulation 28(4) notice covering the operation of slow sand filters at all of the company's large London works, a regulation 28(4) notice for risks associated with Cryptosporidium at all works, a regulation 28(4) notice covering disinfection and turbidity and a regulation 28(4) notice for company-wide Management and Competence in the management of its water supply operations.
Hafren Dyfrdwy	27 Feb 2019	75	18	Wrexham, Clywd	4,115	Discoloured water supplied to consumers following planned work in the distribution system	Recommendations made	Non-toxic chemical parameter failure Non-faecal microbiological failure Discolouration	Planned work in the distribution network caused a loss of pressure in the system, resulting in disturbance of mains deposits. Modelling carried out in advance of the work to inform the risk assessment failed to predict the effect on flow and pressure. The company also failed to update its regulation 27 risk assessment for the supply system after the event.

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Wessex Water Services Ltd	23 Feb 2019	72	17	Durleigh works which supplies Bridgewater, Somerset	51,461	Access covers to the dissolved air flotation tanks were stolen, creating a risk to water quality	Recommendations made	Risk of contamination (route of ingress identified)	During a routine visual survey of the works' site, 13 secure metal covers were found missing from the roof of the interstage ozone tank. The tank contained partially treated water, and a temporary cover was installed to protect the water supply and investigational samples were taken. Sample results did not indicate that the quality of water supplied from the works was affected. The company concluded that the motive was theft rather than a deliberate attempt to contaminate the water supply, although the company was unable to establish how long the covers had been missing before the theft was discovered.
Thames Water Utilities Ltd	11 Mar 2019	72	15	Kempton WTW which supplies Greater London via the London ring main	524,366	Cryptosporidium detection in final water caused by defects in the slow sand filters, caused by poor construction and maintenance	No recommendations or suggestions made	Confirmed faecal (E.coli or Enterococci) microbiology or Cryptosporidium Failure	See case study in Events section of CIR2019 for England
Wessex Water Services Ltd	15 Dec 2019	24	14	Ashford works which supplies Bridgewater	52,036	Cryptosporidium in Final Water	Recommendations made	Laboratory analysis, sampling, data handling issue not likely to have masked a PCV failure Risk of contamination (route of ingress identified) Treatment issues - potential Reg 26 breach Confirmed faecal (E.coli or Enterococci) microbiology or Cryptosporidium Failure	Following an inspection of assets on the works site, an investigatory sample was taken from a tank used for the domestic water supply and process water, which was subsequently reported to contain Cryptosporidium oocysts. This led to the company implementing several contingency and emergency measures. Upon investigation, the company found there had been a laboratory error, and the result was incorrect. The Inspectorate considered that the company had not adequately maintained its assets and the works risk assessment was, therefore, inadequate. The company found there were multiple opportunities for samples to be mixed up in the Cryptosporidium laboratory. The Inspectorate concluded that the company did not act on lessons from the Franklaw which the Inspectorate published in 2017. The Inspectorate made three recommendations.
Independent Water Networks (Eastern)	31 Jan 2019	158	12	Dartford, Kent	2,052	Burst main in Thames Water's network caused a loss of supply affecting IWN's The Bridge inset appointment	No recommendations or suggestions made	Loss of supplies	Loss of supply caused by a burst main in Thames Water's network. The ERI score reflects the population affected and the duration.
Dwr Cymru Welsh Water	13 Sep 2019	192	10	Preseli works which supplies areas of Pembrokeshire, including Fishguard	17,661	Deterioration of raw water quality at Preseli works caused unacceptable tastes and odours in water supplied to consumers	Recommendations made	Taste or odour Media interest - Local media or social media coverage related to WQ or sufficiency	Around 100 consumers contacted the company between 14 and 26 September 2019 complaining about unacceptable taste and odours in the supply from Preseli works. The cause was attributed to elevated concentrations of methylisoborneol and geosmin in the raw water reservoir. The company installed temporary powdered activated carbon (PAC) dosing at the works, and carried out rezoning in the network and imported water in tankers from other areas to blend with the affected water from Preseli works. The Inspectorate carried out a technical audit of the treatment works as part of its investigation into the event. Since the event the company has installed permanent PAC dosing and implemented a number of actions to prevent a recurrence.
Southern Water Services Ltd	16 Jan 2019	24	9	Sompting works which supplies Worthing, West Sussex	126,033	Cryptosporidium in Final Water	Suggestions made	Confirmed faecal (E.coli or Enterococci) microbiology or Cryptosporidium Failure	Sompting works is at risk of Cryptosporidium but does not have barrier treatment in place to remove or inactivate oocysts. Continuous filtration sampling is in place on the final water. A foam pad filter in place for 24 hours was found to contain one oocyst. A catchment survey failed to identify a source of Cryptosporidium. The regulation 27 risk assessment for the works has been updated.
Southern Water Services Ltd	09 Dec 2019	73	8	Falmer works which supplies Brighton, East Sussex	67,248	Atrazine desethyl detected in the final water due to GAC treatment being bypassed	No recommendations or suggestions made	Health related chemical parameter failure	Falmer works abstracts from groundwater sources known to be at risk of atrazine contamination because of proximity to a railway line, and historic pollution of the aquifer. GAC is installed to remove pesticides, but at the time of this event the one GAC adsorber was out of commission. As a control measure whilst the GAC was out of use, the company implemented enhanced monitoring for atrazine with trigger levels set to just below the PCV to shut down the works if atrazine was detected at the trigger concentration. An issue in the laboratory delayed the reporting of a result at the trigger concentration, and a sample subsequently failed. The works was shut down in response. The Inspectorate considered enforcement but regulation 28 notice SRN3926 issued in February 2019 covers issued identified through the company's operational hazard identification process and therefore is applicable to this works and the pesticide risk. The company has investment plans in place to improve the works. Any future breaches of the pesticide standard may result in further enforcement.

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Northumbrian Water Ltd	13 Oct 2019	1	7	Mosswood works which supplies Sunderland and parts of County Durham	870,222	Clarification process compromised following interruption to power supply	Enforcement-legal instrument	Treatment issues - potential Reg 26 breach	These two events at Mosswood works occurred within 5 weeks of each other. Both involved an interruption to the power supply to the works, and the Company did not have adequate controls in place to deal with this foreseeable issue. In October, the backup generator failed to start automatically as designed due to a faulty switch. The company had delayed essential maintenance work to replace this switch because it would require the works to be shut down. The power cut resulted in loss of critical chemical dosing and automatic monitoring and control systems for around one hour, and the automatic (built-in) calculation of CT (chlorine contact) was lost during this time. The turbidity of the clarified water increased above the normal operating limit. In the second (November) event, power was lost for approximately 30 minutes. An attempt to manually start the generator failed because of a defective wiring in the electrical circuitry. Again, critical chemical dosing and control and monitoring systems were lost during the period, and the turbidity of clarified water exceeded the operational limit. Northumbrian Water gave a poor response to the recommendations made in the event assessment letter these events. In their response, the Company did not commit to actions and delivery dates to address the deficiencies on the site, which contributed to the event. This poor response led to enforcement action and the formalisation of the improvement requirements in a Notice, served under Regulation 28(4).
Northumbrian Water Ltd	27 Nov 2019	1	7	Mosswood works which supplies Sunderland and parts of County Durham	870,222	Clarification process compromised following interruption to power supply	Enforcement-legal instrument	Treatment issues - potential Reg 26 breach	
Southern Water Services Ltd	30 Jan 2019	4	6	Wingham works which supplies Thanet and Dover, Kent	191,361	Disinfection failure at Wingham works	Enforcement-legal instrument	Treatment issues - potential Reg 26 breach	A reduction in chlorine contact time occurred when the works was restarted after it had shut down automatically on a water quality alarm. An automatic control measure in place to prevent this happening failed. The Inspectorate initiated enforcement action through a regulation 28 Notice requiring the company to implement measures to prevent a recurrence.
Thames Water Utilities Ltd	17 Oct 2019	24	5	Pangbourne works which supplies parts of Reading, Berkshire	130,102	Cryptosporidium in Final Water	Enforcement-legal instrument	Risk of contamination (route of ingress identified) Confirmed faecal (E.coli or Enterococci) microbiology or Cryptosporidium Failure	A Cryptosporidium oocyst was detected in a foam pad filter from the continuous monitoring at the works. The works is at risk of Cryptosporidium because the raw water sources can be contaminated when the River Thames is in flood. The Inspectorate issued a regulation 28 Notice in 2019 requiring the installation of membrane treatment to remove oocysts. At the time this occurred, the membrane plant had been commissioned and was in the demonstration of benefits phase. The presence of the oocyst was attributed to historic contamination of the aeration stage, which is after membrane filtration. This event was not notified to the Inspectorate in accordance with the requirements of the Information Direction, and a recommendation was made about this. The demonstration of benefits period specified in the Notice has been extended.
United Utilities Water Plc	16 Jan 2019	24	5	Rivington works which supplies Chorley and surrounding area, Lancashire	167,562	Plant failure : poor control of final pH correction	Recommendations made	Treatment issues - no expected Reg 26 breach Non-toxic chemical parameter failure	The Inspectorate was informed of this event by an anonymous contact. Inadequate controls led to an over-dose of sodium hydroxide into the final water. Some samples of water taken in the supply system exceeded the upper specified value for pH, which is an indicator parameter. The company has corrected the faults which caused the event.
Southern Water Services Ltd	02 Oct 2019	8	5	Southampton	125,774	Loss of supplies and discolouration caused by third party damage to a water main	Enforcement-legal instrument	Loss of supplies Discolouration	The Inspectorate assessed the event and made no recommendations or suggestions. The Rownhams water supply zone in which the affected area is situated is covered by a regulation 28 Notice requiring the company to take action to reduce the risk of discolouration in this zone. The full extent of the work is due for completion in 2032.
South Staffordshire Water Plc	25 May 2019	43	5	Barton-under-Needwood, Alrewas and Stapenhall, Staffordshire	12,000	Loss of supplies and discolouration caused by a burst water main	Recommendations made	Low pressure Loss of supplies Health related chemical parameter failure Media interest - Unrelated to water quality or sufficiency local media or social media coverage	A burst 18 inch main caused a loss of supply, and discolouration when supplies were restored. This was a repeat event and the Inspectorate recommended that the company should update its regulation 27 risk assessment for the supply system.

Company	Event Date	Duration (hours)	ERI Score	Affected Location and Area of Supply	Estimate of Population	Description	Main Actions from the Inspectorate's Investigation	Final Seriousness	Commentary
Southern Water Services Ltd	09 Jul 2019	24	5	Weirwood works which supplies Crawley, West Sussex	32,669	The works was removed from supply after biomass was found growing inside the contact tank	Recommendations made	Treatment issues - potential Reg 26 breach	Weirwood works is undergoing major improvements, as required by a regulation 28 Notice, due for completion by April 2026. These works include refurbishment of the contact tank. In July 2018 a robotic camera survey of the inside of the contact tank identified an unknown species of biomass growing inside the tank. The treatment works was removed from supply and the tank was cleaned out, but the growth recurred after the works was returned to supply. Since the first survey in 2018, the contact tank has been drained and cleaned four times. On each occasion after return to supply, the growth returned. The works was last shut down in July 2019 and remains out of supply, and the Inspectorate has updated the Notice to prohibit the works from being returned to supply until the cause of the biomass growth has been addressed.
Southern Water Services Ltd	13 Mar 2019	24	4	Sandown works which supplies Sandown and surrounding areas on the Isle of Wight	55,620	<i>Clostridium perfringens</i> detected in the final treated water	Enforcement-legal instrument	Risk of contamination (route of ingress identified) Non-faecal microbiological failure	Following detection of this indicator bacterium in the final water, the company found a risk of ingress into the contact tank and defects with the microfloc filters. The company is unable to easily remove the works from supply to carry out repairs to the contact tank and has installed temporary covering over the tank to reduce the risk of ingress. The Inspectorate initiated enforcement through a regulation 28 notice, which requires substantial improvement works at Sandown, including necessary work on the contact tank, due for completion by January 2025. UV has been installed as an additional disinfection stage after the contact tank.
Severn Trent Water Ltd	20 Feb 2019	92	4	Bingham, Nottinghamshire	39,485	Discoloured water supplied to consumers following planned work in the distribution system	Recommendations made	Non-toxic chemical parameter failure Aeration Taste or odour Discolouration Media interest - Local media or social media coverage related to WQ or sufficiency	The company was carrying out a mains replacement scheme in the village of Epperstone, Nottinghamshire, which involved replacing a section of 24" trunk main. A new 1.8km section of main was laid to replace the existing section through the village of Epperstone, commissioned on 15 February 2019. Further work was needed to connect the treatment works supplying the network to the new section of trunk main, and installation of line stops caused flow changes and mobilisation of deposits in the network, leading to the supply of discoloured water to consumers. The event caused significant concern to affected consumers, and the Inspectorate made a number of recommendations. The company has since reviewed its contracts for carrying out work on the network and has brought much of this work back in-house.
South East Water Plc	21 Nov 2019	24	4	Firle Service Reservoir which supplies areas in West Sussex	42,451	Ingress identified into Firle service reservoir	Recommendations made	Risk of contamination (route of ingress identified) Visible animalcules	The company carried out an inspection of Firle Reservoir on 21 November 2019, and found skeletal animal remains, and snails. The reservoir had not been inspected internally since 2006 and enhanced monitoring for bacteriological indicators was in place. There were a number of other issues identified, including a lack of adequate maintenance records for the reservoir, mesh missing from a vent pipe, access hatches leaking, inadequate fencing and the reservoir bank walls subsiding. Structural defects were repaired and the reservoir was cleaned and disinfected before recommissioning. There was no evidence from the enhanced monitoring that water quality had been affected as a result of ingress.
Southern Water Services Ltd	31 Jan 2019	21	4	Weirwood works which supplies Crawley, West Sussex	32,669	Failure of coagulant dosing which compromised the treatment process upstream of final disinfection	Recommendations made	Treatment issues - potential Reg 26 breach	Weirwood works was restarted following after a shut down, but the coagulant Polyaluminium Chloride (PACL) dosing did not start dosing simultaneously, due to frozen dosing lines. Weirwood continued to supply water for approximately six hours without coagulant dosing until the works shut down due to high turbidity on the clarifiers. The Inspectorate recommended that the company reviews its procedures and failsafe systems to prevent a recurrence, and also to implement lessons learned at its other major works.
Severn Trent Water Ltd	12 Apr 2019	84	4	Little Eaton, Derby	39,300	Burst 24 inch main causing loss of supplies and discolouration	Recommendations made	Loss of supplies Aeration Discolouration	Water supplies were lost to 21,917 consumers in two water supply zones in Derby, following a burst trunk main. After supplies were restored, the changes in flows caused discoloured water to be supplied to consumers. The distribution system was flushed to remove discoloured water and investigational samples were taken.
Dwr Cymru Welsh Water	29 Apr 2019	48	4	Caerphilly, Wales	25,742	Burst main causing loss of supplies and discolouration	Recommendations made	Loss of supplies Non-toxic chemical parameter failure	Discoloured water was supplied to consumers following a burst main. The affected water supply zone is subject to a regulation 28 notice requiring the company to take action to reduce the risk of discolouration. The company is due to complete a zonal study of the risk of discolouration in this zone by December 2021.