

## Annex 3

### Significant drinking water quality events

| Date and duration                  | Area   | Estimate of population affected | Nature and cause of the event                        | Main actions and findings from the Inspectorate investigation  |
|------------------------------------|--|---------------------------------|--|--|
| 06 Jan 2009<br>For 5 days<br>(DWR) | Maerdy, Ferndale and parts of the Rhondda Valley | 22,400                          | Brown discolouration due to raw water deterioration. | <p>The Inspectorate classified this event as serious.</p> <p><b>Dŵr Cymru Welsh Water action:</b></p> <ul style="list-style-type: none"> <li>• Shut down treatment works.</li> <li>• Sampled affected area.</li> <li>• Provided an alternative supply by tanker/bowser.</li> <li>• Provided bottled water on request.</li> <li>• Repaired main.</li> <li>• Rezoned area (brought in water from different source).</li> <li>• Other actions carried out included flushing the raw water mains to waste in agreement with the Environment Agency.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• Recommended that the company review the alarm settings and priorities for the raw water parameters at the works to ensure the most prompt notification of potential raw water quality problems and attendance at site if appropriate.</li> <li>• Recommended that the company review its maintenance strategy and policy for raw water mains to ensure that a risk-based cleaning programme is in place at all works identified to be at risk from similar problems.</li> </ul> |

| Date and duration                   | Area   | Estimate of population affected | Nature and cause of the event  | Main actions and findings from the Inspectorate investigation   |
|-------------------------------------|--|---------------------------------|--|---|
| 08 Jan 2009<br>For 6 hours<br>(SVT) | Bamford works supplying a large area of Derbyshire and parts of Leicestershire and Nottinghamshire | 180,000                         | Loss of lime dosing and inadequate disinfection following power failure. | <p>The Inspectorate classified this event as significant.</p> <p><b>Severn Trent Water action:</b></p> <ul style="list-style-type: none"> <li>• Repaired faulty equipment.</li> <li>• Sampled affected area.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• Compromised contact time following a failure of the lime dosing plant (use of incorrect fuse).</li> <li>• Inadequate follow-up sampling.</li> <li>• One of four similar events at Bamford works in 2009.</li> <li>• Enforcement action initiated.</li> </ul>  |
| 13 Jan 2009<br>For 2 days<br>(BWH)  | Fordingbridge, Hants   | 3,010                           | Brown discolouration due to planned work.                                | <p>The Inspectorate classified this event as significant.</p> <p><b>Bournemouth and West Hampshire Water action:</b></p> <ul style="list-style-type: none"> <li>• Sampled affected area.</li> <li>• Undertook a risk assessment in advance of the planned work.</li> <li>• Acted promptly and effectively to resolve the issue.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• Supplied unwholesome water in breach of regulations.</li> <li>• Recommended updating the model of local distribution system to reflect the lessons learnt during the course of this event.</li> <li>• Recommended enhancing procedures to extend the use of flow modelling for planned work, particularly for valving operations on large diameter mains.</li> <li>• Recommended review of condition of the mains network in this district metered area (DMA) and incorporating findings into its Distribution, Operation and Maintenance Strategies.</li> </ul> |

| Date and duration                   | Area   | Estimate of population affected | Nature and cause of the event   | Main actions and findings from the Inspectorate investigation  |
|-------------------------------------|--|---------------------------------|---|--|
| 19 Jan 2009<br>For 4 weeks<br>(ANG) | Unoccupied building in Biggleswade, Bedfordshire | 3                               | Hydrocarbon odour due to compounds in the mains and possible contaminated land. | <p>The Inspectorate classified this event as significant.</p> <p><b>Anglian Water action:</b></p> <ul style="list-style-type: none"> <li>• Flushed mains.</li> <li>• Sampled affected area.</li> <li>• A large section of a 10" iron main was taken out of commission, to which the property had been connected just prior to the taste being discerned. The company suspect a combination of the nature of the lining of this main and low turnover, and possible contaminated land issues; hence the connection was relaid in barrier pipe.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• A recommendation was made in respect of inadequate follow-up sampling which delayed the investigation, as both mains supplying this property were not initially sampled.</li> <li>• A recommendation was also made regarding procedures for the use of barrier pipe to ensure that it is used appropriately, e.g. where land had a previous industrial use.</li> <li>• The company will continue with investigations into the root cause.</li> <li>• A recommendation was made to review the risks associated with the 10" main and incorporate any findings into the risk assessment for the local supply area.</li> </ul> |

| Date and duration                    | Area  | Estimate of population affected | Nature and cause of the event             | Main actions and findings from the Inspectorate investigation   |
|--------------------------------------|---|---------------------------------|---|---|
| 20 Jan 2009<br>For 36 hours<br>(SRN) | Shoreham-by-Sea   | 1,000                           | Brown discolouration due to planned work. | <p>The Inspectorate classified this event as significant.</p> <p><b>Southern Water action:</b></p> <ul style="list-style-type: none"> <li>• Sampled affected area.</li> <li>• Review of procedures.</li> <li>• Repaired main.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• Inadequate risk assessment.</li> <li>• The Inspectorate was critical that no flushing was undertaken.</li> </ul> |
| 24 Jan 2009<br>For 4 days<br>(SVT)   | Belton in Rutland and Allexton Villages, Leicestershire | 495                             | Boil water notice due to mains burst.     | <p>The Inspectorate classified this event as significant.</p> <p><b>Severn Trent Water action:</b></p> <ul style="list-style-type: none"> <li>• Repaired main.</li> <li>• Sampled affected area.</li> <li>• Issued a boil water notice.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• Inadequate contingency planning.</li> <li>• Inadequate investigation into root cause.</li> </ul>       |

| Date and duration                   | Area  | Estimate of population affected | Nature and cause of the event                      | Main actions and findings from the Inspectorate investigation   |
|-------------------------------------|---|---------------------------------|--|---|
| 25 Jan 2009<br>For 3 hours<br>(BRL) | Littleton works supplying Almondsbury and Avonmouth | 100,000                         | Loss of ozone due to plant failure.                | <p>The Inspectorate classified this event as significant.</p> <p><b>Bristol Water action:</b></p> <ul style="list-style-type: none"> <li>• Replaced faulty equipment.</li> <li>• Plan to upgrade works control and automation system.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• At time of the event the works was not configured to shut down on loss of communications from ozone equipment. This was rectified at Littleton and a recommendation was made that all treatment works are reviewed.</li> <li>• Recommended a modification to ensure that sample pumps do not fail on works shutdown.</li> <li>• Recommended action regarding commissioning and testing of new equipment.</li> <li>• CCWater were not informed of this event and the company were reminded of their obligation to do so.</li> </ul> |
| 27 Jan 2009<br>For 8 hours<br>(UU)  | Hug Bridge works supplying Congleton area, Cheshire | 30,000                          | Loss of coagulation due to failure of dosing pump. | <p>The Inspectorate classified this event as significant.</p> <p><b>United Utilities Water action:</b></p> <ul style="list-style-type: none"> <li>• Repaired faulty equipment.</li> <li>• Review of procedures.</li> <li>• Sampled affected area.</li> <li>• The company undertook a number of actions, including modifications to the coagulation software.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• Inadequate treatment process – clarification.</li> <li>• Company to review the site procedures and risk assessments relating to <i>Cryptosporidium</i>.</li> </ul>  |

| Date and duration                    | Area   | Estimate of population affected | Nature and cause of the event  | Main actions and findings from the Inspectorate investigation   |
|--------------------------------------|--|---------------------------------|--|---|
| 27 Jan 2009<br>For 4 weeks<br>(SEW)  | Burham works,<br>operated by<br>Southern Water,<br>Kent    | 44,150                          | Metaldehyde in<br>raw water.   | <p>The Inspectorate classified this event as significant.</p> <p><b>South East Water action:</b></p> <ul style="list-style-type: none"> <li>• Sampled affected area.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• Recommend that reports are submitted in the required timescales.</li> <li>• Enforcement action initiated.</li> </ul>  |
| 28 Jan 2009<br>For 12 hours<br>(NNE) | Dipton, County<br>Durham                                   | 12,500                          | Brown<br>discolouration due<br>to burst main.                                  | <p>The Inspectorate classified this event as significant.</p> <p><b>Northumbrian Water action:</b></p> <ul style="list-style-type: none"> <li>• Repaired main.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• Inadequate procedures.</li> <li>• Inadequate contingency planning.</li> </ul>   |
| 28 Jan 2009<br>For 1 day<br>(UU)     | Ulpha works<br>supplying parts<br>of south west<br>Cumbria | 50,000                          | Coagulation<br>deficiencies and<br><i>Cryptosporidium</i> in<br>treated water. | <p>The Inspectorate classified this event as significant.</p> <p><b>United Utilities Water action:</b></p> <ul style="list-style-type: none"> <li>• Review of procedures.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• Did not liaise with local/health authorities.</li> <li>• Inadequate communication caused delay in response.</li> <li>• Regulation 26 requirements were not met by the fact that the treatment process did not operate as intended.</li> <li>• The coagulation problems may have resulted in <i>Cryptosporidium</i> oocysts passing into supply.</li> </ul> |

| Date and duration                   | Area                                     | Estimate of population affected | Nature and cause of the event                 | Main actions and findings from the Inspectorate investigation  |
|-------------------------------------|--|---------------------------------|---|--|
| 29 Jan 2009<br>For 2 hours<br>(SWT) | Venford works,<br>Dartmoor area          | 56,600                          | Inadequate disinfection due to plant failure. | <p>The Inspectorate classified this event as significant.</p> <p><b>South West Water action:</b></p> <ul style="list-style-type: none"> <li>• Repaired faulty equipment.</li> <li>• Sampled affected area.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• The company did not liaise with local/health authorities.</li> <li>• Disinfection was less than specified for this site for approximately 90 minutes following plant malfunction during a chlorine gas cylinder changeover.</li> </ul> |
| 29 Jan 2009<br>For 30 days<br>(SRN) | Beauport works,<br>Hastings, West Sussex | 104,000                         | Isoproturon in raw water.                     | <p>The Inspectorate classified this event as significant.</p> <p><b>Southern Water action:</b></p> <ul style="list-style-type: none"> <li>• Sampled affected area.</li> <li>• Liaising with the Environment Agency and ADAS to undertake work in the catchment regarding the usage of isoproturon.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• Investigation ongoing.</li> <li>• Recommended company keeps Inspectorate informed of investigations.</li> </ul>                                |

| Date and duration                 | Area   | Estimate of population affected | Nature and cause of the event                         | Main actions and findings from the Inspectorate investigation   |
|-----------------------------------|--|---------------------------------|---|---|
| 30 Jan 2009<br>For 1 day<br>(UU)  | Southport and Formby area                                    | 120,000                         | Brown discolouration due to burst main.               | <p>The Inspectorate classified this event as significant.</p> <p><b>United Utilities Water action:</b></p> <ul style="list-style-type: none"> <li>• Flushed and repaired mains.</li> <li>• Sampled affected area.</li> <li>• Rezoned area (brought in water from different source).</li> <li>• Risk assessment undertaken but not documented.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• Sampling was not timely enough.</li> <li>• Recommended that interim measures are investigated to prevent discolouration in this area, prior to the completion of longer term remedial measures (legally binding undertaking in place).</li> </ul>  |
| 01 Feb 2009<br>For 1 day<br>(DWR) | Pendine works, supplying parts of South West Carmarthenshire | 7,781                           | <i>Cryptosporidium</i> and problems with coagulation. | <p>The Inspectorate classified this event as significant.</p> <p><b>Dŵr Cymru Welsh Water action:</b></p> <ul style="list-style-type: none"> <li>• Issued a boil water notice.</li> <li>• Repaired faulty equipment.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• Commended the operators rapid response to instigate standby coagulant dosing. This action undoubtedly reduced the subsequent duration of the loss of treatment.</li> <li>• DWI minded to recommend that coagulant dosing alarms were fitted, however, it was noted work is currently in progress to install flow meters and telemetry alarms.</li> <li>• Recommended that the company reviews how it ensures disinfection is adequate and undertakes appropriate monitoring.</li> </ul> |

| Date and duration                   | Area   | Estimate of population affected | Nature and cause of the event   | Main actions and findings from the Inspectorate investigation   |
|-------------------------------------|--|---------------------------------|---|---|
| 05 Feb 2009<br>For 20 days<br>(SES) | Bough Beech works, supplying an area west of Sevenoaks, Kent | 30,620                          | Pesticide (carbetamide).  | <p>The Inspectorate classified this event as significant.</p> <p><b>Sutton And East Surrey Water action:</b></p> <ul style="list-style-type: none"> <li>• Sampled affected area.</li> <li>• Additional granular activated carbon (GAC) being installed which will provide adequate treatment for carbetamide at the concentrations found in the raw water.</li> <li>• Engaged with the landowner to improve the management within the catchment.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• Once installed, GAC should deal with future carbetamide challenges.</li> </ul>    |
| 10 Feb 2009<br>For 1 day<br>(UU)    | Wybersley works supplying Stockport and surrounding area     | 350,000                         | <i>Cryptosporidium</i> in treated water and due to problems with treatment. | <p>The Inspectorate classified this event as significant.</p> <p><b>United Utilities Water action:</b></p> <ul style="list-style-type: none"> <li>• Sampled affected area.</li> <li>• The company investigations pointed to a possible link between oocysts and works shutdown.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• Recommended that the company undertake a review of the works start up processes with a view to limiting the impact on turbidity levels.</li> <li>• Recommended that the company review, and update if appropriate, the risk assessment.</li> </ul> |

| Date and duration                   | Area   | Estimate of population affected | Nature and cause of the event                | Main actions and findings from the Inspectorate investigation  |
|-------------------------------------|--|---------------------------------|--|--|
| 12 Feb 2009<br>For 14 days<br>(SEW) | Bough Beech works, operated by Sutton and East Surrey Water, supplying East Surrey | 215                             | Carbetamide in raw water.                    | <p>The Inspectorate classified this event as significant.</p> <p><b>South East Water action:</b></p> <ul style="list-style-type: none"> <li>• Carbetamide included in legally binding investigations in relation to metaldehyde at this site.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• Recommended reporting of events in a more timely manner following failure to meet the requirements of Section 7 of the Water Undertakers (Information) Direction 2004.</li> <li>• The Inspectorate initiated enforcement action.</li> </ul> |
| 16 Feb 2009<br>For 1 day<br>(UU)    | Carlisle   | 17,224                          | Brown discolouration due to burst main.      | <p>The Inspectorate classified this event as significant.</p> <p><b>United Utilities Water action:</b></p> <ul style="list-style-type: none"> <li>• Repaired main.</li> <li>• Sampled affected area.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• DWI was satisfied with the actions taken.</li> </ul>   |
| 16 Feb 2009<br>For 1 day<br>(SRN)   | Broadwater works supplying parts of West Sussex                                    | 98,456                          | Detection of <i>E.coli</i> in treated water. | <p>The Inspectorate classified this event as significant.</p> <p><b>Southern Water action:</b></p> <ul style="list-style-type: none"> <li>• Sampled affected area.</li> <li>• Investigated the treatment process.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• The Inspectorate suggested that the company review and update its Regulation 27 risk assessment and consider further investigation of the granular activated carbon (GAC) filters on site.</li> </ul>   |

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|------------------------------------|--|---------------------------------|--|--|
| 17 Feb 2009<br>For 7 days<br>(UU)  | Adswold Rd and Councillor Lane, Stockport  | 250                             | Brown/blue/green discolouration linked to common copper supply pipe.                               | <p>The Inspectorate classified this event as significant.</p> <p><b>United Utilities Water action:</b></p> <ul style="list-style-type: none"> <li>• Flushed mains.</li> <li>• Sampled affected area.</li> <li>• Carried out water fittings inspections.</li> <li>• Planning to replace a common copper supply pipe serving a number of the affected properties.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• Inadequate communication caused delay in response resulting in discoloured water and taste complaints.</li> <li>• Company review procedures to ensure that triggers for event recognition are sufficiently robust.</li> </ul> |
| 19 Feb 2009<br>For 1 day<br>(UU)   | Ulpha works supplying parts of south west Cumbria                                  | 72,000                          | <i>Cryptosporidium</i> in treated water.   | <p>The Inspectorate classified this event as significant.</p> <p><b>United Utilities Water action:</b></p> <ul style="list-style-type: none"> <li>• Review of procedures.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• Did not liaise with local/health authorities.</li> <li>• Did not notify Inspectorate.</li> </ul>  |
| 19 Feb 2009<br>For 4 days<br>(YKS) | Graincliffe works supplying parts of Bradford, Keighley, Ilkley, Bingley and Otley | 60,000                          | Turbidity linked to changes in plant settings and alarms triggering shutdown and restart of works. | <p>The Inspectorate classified this event as significant.</p> <p><b>Yorkshire Water action:</b></p> <ul style="list-style-type: none"> <li>• Sampled affected area.</li> <li>• The company is currently working on a programme of improvements to the treatment works and reinforcing the distribution system to prevent a recurrence of this event.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• Inadequate treatment process – clarification.</li> <li>• Company has an action plan in place to resolve the treatment difficulties at this site.</li> </ul>  |

| Date and duration                   | Area  | Estimate of population affected | Nature and cause of the event           | Main actions and findings from the Inspectorate investigation   |
|-------------------------------------|---|---------------------------------|---|---|
| 21 Feb 2009<br>For 6 hours<br>(SRN) | Beauport works<br>supplying parts<br>of West Sussex | 104,000                         | Loss of dosing due<br>to plant failure. | <p>The Inspectorate classified this event as significant.</p> <p><b>Southern Water action:</b></p> <ul style="list-style-type: none"> <li>• Repaired faulty equipment.</li> <li>• Sampled affected area.</li> <li>• Reminded staff of the importance of the use of the run to waste facility and review of associated procedure.</li> <li>• Installed new turbidity meters on the filter outlets.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• Recommended comprehensive sampling for the appropriate parameters.</li> <li>• Recommended review and update of risk assessment with regard to disinfection and loss of poly dosing risks<br/>Critical of discrepancy between turbidity meter and sample and recommended this be further investigated and problems rectified.</li> <li>• Recommended the company ensures appropriate procedures are in place in the interim period before disinfection system upgrade completed.</li> </ul> |

| Date and duration                  | Area  | Estimate of population affected | Nature and cause of the event         | Main actions and findings from the Inspectorate investigation   |
|------------------------------------|---|---------------------------------|---------------------------------------|---|
| 28 Feb 2009<br>For 2 days<br>(SVT) | Peckforton works,<br>Newcastle under Lyme, Stoke on Trent | 53,000                          | Arsenic due to a failure of blending. | <p>The Inspectorate classified this event as serious.</p> <p><b>Severn Trent Water action:</b></p> <ul style="list-style-type: none"> <li>• Sampled affected area.</li> <li>• Reviewed procedures.</li> <li>• Retrained staff.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• Highly critical that reliance was placed on data for the arsenic blending calculator which was not up-to-date, however noted the company have already reviewed and updated the calculator.</li> <li>• Recommended the company puts in place procedures to ensure that information is regularly updated in the calculator and inform the Inspectorate of how this will be achieved.</li> <li>• Critical that alternative power supplies were not available for these boreholes.</li> <li>• Recommended the company investigate all possible scenarios for maintaining power to the Peckforton borehole group to ensure that an effective blend can be maintained at all times.</li> <li>• Recommended the company apply learning from this event, with respect to the risk assessment and provision of alternative power supplies at all relevant sites.</li> <li>• Concluded the time of travel in the distribution system was not fully understood by the company in advance of this event.</li> <li>• Recommended the company ensures that this information is improved to understand the potential extent and duration of any water quality issue, and take all reasonable steps to document lessons learnt from this event and apply reasonable steps where appropriate.</li> </ul> |

| Date and duration                    | Area                                    | Estimate of population affected | Nature and cause of the event                             | Main actions and findings from the Inspectorate investigation   |
|--------------------------------------|---|---------------------------------|---|---|
| (continued)                          |   |                                 |   | <ul style="list-style-type: none"> <li>• Highly critical that the company missed multiple opportunities to escalate this event internally and externally, however, noted that the company has reviewed internal procedures relevant to responding to elevated concentrations of arsenic.</li> <li>• The company investigation was inadequate, and breached Regulation 17.</li> <li>• Recommended the company develop an action plan covering the full range of scenarios which apply to this blending arrangement, and any other similar blending arrangements in the company, to ensure compliance at all times with the relevant standards.</li> <li>• Concluded that the company sufficiently identified the risk from arsenic but failed to have in place effective mitigation.</li> <li>• A Notice under Regulation 28(4) was issued.</li> </ul> |
| 03 Mar 2009<br>For 20 weeks<br>(WSX) | Maundown works,<br>Taunton,<br>Somerset | 147,178                         | Chlorine taste/odour due to changes in treatment process. | <p>The Inspectorate classified this event as significant.</p> <p><b>Wessex Water action:</b></p> <ul style="list-style-type: none"> <li>• The company adjusted chlorine residuals at the site in anticipation of the improvements, but still received substantial numbers of consumer contacts.</li> <li>• The company will use lessons learnt regarding advance communication to consumers in relation to changes in water supply.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• Criticisms were made regarding the lack of communication with consumers regarding changes to water supply.</li> </ul>  |

| Date and duration                   | Area   | Estimate of population affected | Nature and cause of the event                 | Main actions and findings from the Inspectorate investigation   |
|-------------------------------------|--|---------------------------------|---|---|
| 08 Mar 2009<br>For 3 hours<br>(SVT) | Bamford works supplying a large area of Derbyshire and parts of Leicestershire and Nottinghamshire | 180,000                         | Inadequate disinfection due to power failure. | <p>The Inspectorate classified this event as significant.</p> <p><b>Severn Trent Water action:</b></p> <ul style="list-style-type: none"> <li>• Replaced faulty equipment.</li> <li>• The company have identified that the works is achieving at best a contact time value of 15mg/l.min which does not meet the company's current internal design criteria of 30mg/l.mins.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• Inadequate treatment process.</li> <li>• Recommended that the company reviews their Regulation 27 risk assessment for this site and submits any update to their Regulation 28(4) risk assessment report to the Inspectorate.</li> <li>• One of four similar events at Bamford works in 2009.</li> <li>• Enforcement action initiated.</li> </ul> |
| 09 Mar 2009<br>For 6 weeks<br>(NNE) | Horsley works supplying Newcastle, North Tyneside and areas of Northumberland                      | 750,000                         | Metaldehyde.                                  | <p>The Inspectorate classified this event as significant.</p> <p><b>Northumbrian Water action:</b></p> <ul style="list-style-type: none"> <li>• Company to submit undertaking.</li> <li>• Established sampling regime for metaldehyde.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• Enforcement action taken and legally binding programme of mitigation measures put in place.</li> </ul>  |

| Date and duration                 | Area                         | Estimate of population affected | Nature and cause of the event             | Main actions and findings from the Inspectorate investigation  |
|-----------------------------------|------------------------------|---------------------------------|---|--|
| 09 Mar 2009<br>For 20 weeks (SVT) | Bulleigh,<br>Gloucestershire | 2,090                           | Cross connection with a private borehole. | <p>The Inspectorate classified this event as significant.</p> <ul style="list-style-type: none"> <li>• <b>Severn Trent Water action:</b> <ul style="list-style-type: none"> <li>• Sampled affected area.</li> <li>• Disconnected private bore hole from public supply.</li> <li>• Reinstalled the meter and boundary box correctly.</li> <li>• Carried out a water fittings inspection at the property and allowed seven days to rectify contraventions.</li> <li>• Company has initiated a programme of inspections for all properties where a private supply is registered.</li> </ul> </li> <li>• <b>DWI comments and findings:</b> <ul style="list-style-type: none"> <li>• The meter and boundary box had been installed the wrong way round.</li> <li>• The customer had made a connection between the private supply and the public one which because of the configuration of the meter had allowed untreated water to pass from the private bore hole into the public supply.</li> <li>• Delay in sampling around the time of disconnection.</li> <li>• DWI recommended that the company review their procedures for installation of boundary boxes and meters.</li> </ul> </li> </ul> |

| Date and duration                  | Area                    | Estimate of population affected | Nature and cause of the event             | Main actions and findings from the Inspectorate investigation   |
|------------------------------------|-------------------------|---------------------------------|---|---|
| 16 Mar 2009<br>For 17 days<br>(UU) | Walkden area of Swinton | 89,959                          | Brown discolouration due to planned work. | <p>The Inspectorate classified this event as significant.</p> <p><b>United Utilities Water action:</b></p> <ul style="list-style-type: none"> <li>• Flushed mains.</li> <li>• Repaired faulty equipment.</li> <li>• Retrained staff.</li> <li>• Review of procedures.</li> <li>• Sampled affected area.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• Critical that cleaning of the mains was undertaken despite camera surveys showing lining in poor condition.</li> <li>• Inadequate removal of deposits from main (camera survey showed deposits removed but they clearly were not).</li> <li>• Company returned main to supply without waiting for sample results.</li> </ul> |
| 18 Mar 2009<br>For 2 days<br>(SRN) | Burham works, Kent      | 44,150                          | Carbetamide in raw water.                 | <p>The Inspectorate classified this event as significant.</p> <p><b>Southern Water action:</b></p> <ul style="list-style-type: none"> <li>• Sampled affected area.</li> <li>• Regenerated GAC unit.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• Recommended the company ensures GAC units were regenerated at different frequencies and regime to ensure that works has capacity to deal with varying flow and demand.</li> </ul>  |

| Date and duration                  | Area  | Estimate of population affected | Nature and cause of the event  | Main actions and findings from the Inspectorate investigation   |
|------------------------------------|---|---------------------------------|--|---|
| 24 Mar 2009<br>For 1 day<br>(SEW)  | Burham works,<br>operated by<br>Southern Water,<br>Kent | 44,150                          | Carbetamide in<br>raw water.   | <p>The Inspectorate classified this event as significant.</p> <p><b>South East Water action:</b></p> <ul style="list-style-type: none"> <li>• Sampled affected area.</li> <li>• Liaised with Southern Water, the provider of the bulk supply.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• Event related to bulk water import from Southern Water. (See above) Recommended the company ensures GAC units were regenerated at different frequencies and regime to ensure that works has capacity to deal with varying flow and demand.</li> </ul>  |
| 25 Mar 2009<br>For 3 days<br>(ESK) | Part of<br>Corringham,<br>Essex                         | 105                             | Boil water notice<br>issued due to<br>potential<br>contamination of a<br>mains repair<br>excavation. | <p>The Inspectorate classified this event as significant.</p> <p><b>Essex and Suffolk Water action:</b></p> <ul style="list-style-type: none"> <li>• Repaired main.</li> <li>• Flushed mains.</li> <li>• Issued a boil water notice.</li> <li>• Sampled affected area.</li> <li>• Local spray disinfection of the fittings and exposed pipework was carried out.</li> <li>• The boil notice was lifted on 28 March following satisfactory sample results.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• Company procedures required a full disinfection of the fittings and pipework should any substantial contamination be suspected. In this event only localised spray chlorination was undertaken, thus the company failed to comply with its own procedures which need to be clarified.</li> </ul> |

| Date and duration                  | Area                    | Estimate of population affected | Nature and cause of the event             | Main actions and findings from the Inspectorate investigation   |
|------------------------------------|-------------------------|---------------------------------|---|---|
| 26 Mar 2009<br>For 2 days<br>(BWH) | Fordingbridge,<br>Hants | 3,010                           | Brown discolouration due to planned work. | <p>The Inspectorate classified this event as significant.</p> <p><b>Bournemouth and West Hampshire Water action:</b></p> <ul style="list-style-type: none"> <li>• Flushed mains.</li> <li>• Sampled affected area.</li> <li>• Provided bottled water on request.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• Planned work was undertaken to isolate the existing treated water tank at the works supplying this area, to test a newly built second tank.</li> <li>• The tank was not isolated as predicted and the works was shut down for a short period while this was rectified.</li> <li>• Following restoration of supplies a flow surge in the downstream supply system resulted in discolouration for two days.</li> <li>• The company uncovered a valve in the wrong position.</li> <li>• A formal risk assessment was not carried out in advance and the risk of discoloured water was not anticipated despite a previous discolouration event in this area. The company have now updated their procedures.</li> <li>• Inadequate follow-up sampling.</li> <li>• Inadequate information was provided in the final report, specifically on consumer contacts received.</li> <li>• Criticisms were made regarding the delay (two years) in programming a systematic flushing exercise in the area, as there have been two significant discolouration events this year.</li> </ul> |

| Date and duration                    | Area   | Estimate of population affected | Nature and cause of the event                       | Main actions and findings from the Inspectorate investigation   |
|--------------------------------------|--|---------------------------------|---|---|
| 30 Mar 2009<br>For 12 hours<br>(UU)  | Lamaload works supplying an area near Macclesfield | 14,000                          | Temporary loss of coagulation due to plant failure. | <p>The Inspectorate classified this event as significant.</p> <p><b>United Utilities Water action:</b></p> <ul style="list-style-type: none"> <li>• Sampled affected area.</li> <li>• Repaired faulty equipment.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• Recommended that Operations Response Centre and the standby controllers are reminded of the importance to examine all available data when investigating events.</li> <li>• Critical of the failure of the standby and duty coagulation system which did not generate any alarms at the Operations Response Centre.</li> </ul>   |
| 01 Apr 2009<br>For 20 hours<br>(DWR) | Pendarnddu near Merthyr Tydfil                     | 9,500                           | Brown discolouration due to planned work.           | <p>The Inspectorate classified this event as significant.</p> <p><b>Dŵr Cymru Welsh Water action:</b></p> <ul style="list-style-type: none"> <li>• Repaired faulty equipment.</li> <li>• Rezoned area (brought in water from different source).</li> <li>• Sampled affected area.</li> <li>• Provided an alternative supply by tanker/bowser.</li> <li>• Provided bottled water on request.</li> <li>• Review of procedures.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• Inadequate risk assessment.</li> <li>• Recommended in future all works shuts are properly risk assessed to encompass all possible scenarios and eventualities.</li> <li>• Recommended that in the interim period before isolation and cleaning of this reservoir that procedures are put in place to prevent the disturbance of the deposits in this reservoir.</li> <li>• Recommended that the company apply learning from this event to all relevant sites, with specific reference to the management of reservoir levels during events.</li> </ul> |

| Date and duration                 | Area   | Estimate of population affected | Nature and cause of the event  | Main actions and findings from the Inspectorate investigation   |
|-----------------------------------|--|---------------------------------|--|---|
| 05 Apr 2009<br>For 1 day<br>(CAM) | Properties in<br>Guilden Morden,<br>near Royston<br>Cambridgeshire | 1,000                           | Taste or odour due to stagnation and a coal tar lined main.                        | <p>The Inspectorate classified this event as significant.</p> <p><b>Cambridge Water action:</b></p> <ul style="list-style-type: none"> <li>• Flushed mains.</li> <li>• Provided bottled water on request.</li> <li>• Review of procedures.</li> <li>• Subsequently replaced the main.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• No recommendations made.</li> <li>• The company undertook a thorough internal review of the event and improved their internal guidelines for sampling parameters during particular drinking water quality events.</li> </ul> |
| 07 Apr 2009<br>For 1 day<br>(PRT) | Clanfield area   | 8,250                           | Cat litter odour due to uncured sealant following service reservoir refurbishment. | <p>The Inspectorate classified this event as significant.</p> <p><b>Portsmouth Water action:</b></p> <ul style="list-style-type: none"> <li>• Removed service reservoir from supply.</li> <li>• Flushed mains.</li> <li>• Sampled affected area.</li> <li>• Review of procedures.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• The Inspectorate noted the company actions to put in place procedures to address verification of repairs using sealant and work with manufacturer to address issue.</li> </ul>   |

| Date and duration                  | Area                                     | Estimate of population affected | Nature and cause of the event                                  | Main actions and findings from the Inspectorate investigation   |
|------------------------------------|--|---------------------------------|--|---|
| 10 Apr 2009<br>For 2 days<br>(DWR) | Pontardulais and Gorseinon, near Swansea | 39,530                          | Brown discolouration due to planned work.                      | <p>The Inspectorate classified this event as significant.</p> <p><b>Dŵr Cymru Welsh Water action:</b></p> <ul style="list-style-type: none"> <li>• Provided bottled water on request.</li> <li>• Review of procedures.</li> <li>• Sampled affected area.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• Inadequate procedures.</li> <li>• Each consumer reporting discoloured water was contacted again on 14 April to confirm that all discolouration had cleared from the system and DWI commended the company for this action.</li> <li>• Recommended that the company undertake a further review of the procedures to take into account whether or not any additional changes are required to incorporate the findings of the modelling exercise.</li> <li>• Recommended that the company undertake a review to understand what other options are available for better management of flows and velocities at Bryngwyn works and in this potentially sensitive distribution system.</li> </ul> |
| 15 Apr 2009<br>For 3 days<br>(VCE) | Pinner Road, Harrow                      | 80                              | Microbiological contamination following mains connection work. | <p>The Inspectorate classified this event as significant.</p> <p><b>Veolia Water Central action:</b></p> <ul style="list-style-type: none"> <li>• Flushed mains.</li> <li>• Sampled affected area.</li> <li>• Issued a boil water notice.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• No recommendations made, well managed event resulting from unusual circumstances.</li> </ul>   |

| Date and duration                   | Area   | Estimate of population affected | Nature and cause of the event                       | Main actions and findings from the Inspectorate investigation   |
|-------------------------------------|--|---------------------------------|---|---|
| 17 Apr 2009<br>For 1 day<br>(UU)    | Rivington works supplying and area near Bolton and Wigan | 257,000                         | Temporary loss of coagulation due to plant failure. | <p>The Inspectorate classified this event as significant.</p> <p><b>United Utilities Water action:</b></p> <ul style="list-style-type: none"> <li>• Repaired faulty equipment.</li> <li>• Sampled affected area.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• Inadequate treatment process – clarification.</li> <li>• Recommended that the company undertake a review of all its Water Treatment Works sites to determine the presence of similar combination of circumstances which might result in such an event occurring elsewhere in the company.</li> </ul>  |
| 22 Apr 2009<br>For 8 hours<br>(DWR) | Aberdare   | 25,851                          | Brown discolouration due to burst main.             | <p>The Inspectorate classified this event as significant.</p> <p><b>Dŵr Cymru Welsh Water action:</b></p> <ul style="list-style-type: none"> <li>• Sampled affected area.</li> <li>• Replaced faulty equipment.</li> <li>• Provided an alternative supply by tanker/bowser.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• Inadequate investigations into root cause.</li> <li>• Supplied unwholesome water in breach of regulations.</li> <li>• Recommended, that the company consider other measures to monitor this type of situation and make better use of online telemetry to monitor the distribution system.</li> </ul> |

| Date and duration                  | Area   | Estimate of population affected | Nature and cause of the event                                 | Main actions and findings from the Inspectorate investigation   |
|------------------------------------|--|---------------------------------|---|---|
| 26 Apr 2009<br>For 2 days<br>(SVT) | Apperknowle,<br>Coal Aston and<br>Dronfield town<br>centre | 11,585                          | Loss of supplies/poor pressure due to a burst main.           | <p>The Inspectorate classified this event as significant.</p> <p><b>Severn Trent Water action:</b></p> <ul style="list-style-type: none"> <li>• Provided an alternative supply by tanker/bowser.</li> <li>• Repaired main.</li> <li>• Rezoned area (brought in water from different source).</li> <li>• Sampled affected area.</li> <li>• Rapid response unit (RRU) used to maintain supplies.</li> <li>• Mains condition investigated and section of main replaced.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• Suggested the company uses the lessons learnt from this event to inform its Distribution, Operations and Maintenance Strategy for the local area and make any revisions necessary.</li> </ul> |
| 28 Apr 2009<br>For 1 day<br>(DWR)  | West of Chester<br>Denbigh                                 | 175,000                         | Issue of boil notice, microbiological contamination at works. | <p>The Inspectorate classified this event as major.</p> <ul style="list-style-type: none"> <li>• Investigation ongoing.</li> </ul> <p><b>Dŵr Cymru Welsh Water action:</b></p> <ul style="list-style-type: none"> <li>• Issued a boil water notice.</li> <li>• Sampled affected area.</li> <li>• Made alterations to treatment works disinfection process.</li> <li>• Reduced flow through the works</li> <li>• Investigated and reviewed catchment, treatment performance and water quality data.</li> </ul>   |

| Date and duration                  | Area  | Estimate of population affected | Nature and cause of the event                               | Main actions and findings from the Inspectorate investigation   |
|------------------------------------|---|---------------------------------|---|---|
| 29 Apr 2009<br>For 8 days<br>(DVW) | Old Warren near Chester and Glyndyfrdwy near Llangollen | 383                             | Boil notice due and microbiological contamination at works. | <p>The Inspectorate classified this event as serious.</p> <p><b>Dee Valley Water action:</b></p> <ul style="list-style-type: none"> <li>• Issued a boil water notice.</li> <li>• Sampled affected area.</li> <li>• Provided bottled water on request.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• Company commended for its management of this event which related to a supply from Dŵr Cymru Welsh Water.</li> </ul>  |
| 04 May 2009<br>For 1 day<br>(UU)   | Newhey, Rochdale  | 3,187                           | Brown discolouration.                                       | <p>The Inspectorate classified this event as significant.</p> <p><b>United Utilities Water action:</b></p> <ul style="list-style-type: none"> <li>• Repaired faulty equipment.</li> <li>• Sampled affected area.</li> <li>• Removed service reservoir from supply.</li> <li>• Review of procedures.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• Recommended that the company investigate the reasons for the chlorine variability leaving the works.</li> <li>• Company also reminded to include all relevant information in its reports to the Inspectorate.</li> </ul> |

| Date and duration                   | Area                    | Estimate of population affected | Nature and cause of the event                   | Main actions and findings from the Inspectorate investigation  |
|-------------------------------------|-------------------------|---------------------------------|---|--|
| 04 May 2009<br>For 4 weeks<br>(SRN) | Amport, near<br>Andover | 125                             | Green/brown<br>discolouration.                  | <p>The Inspectorate classified this event as significant.</p> <p><b>Southern Water action:</b></p> <ul style="list-style-type: none"> <li>• Flushed mains.</li> <li>• Provided bottled water on request.</li> <li>• Rezoned area (brought in water from different source).</li> <li>• Sampled affected area.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• Cause not identified by company, but potential boundary valve operation by unauthorised third party or back siphonage.</li> <li>• Recommend future investigational sampling is conducted before and after flushing activities to ensure that the source of contamination can be identified.</li> </ul> |
| 07 May 2009<br>For 3 days<br>(WSX)  | Bridgwater,<br>Somerset | 45,000                          | Brown<br>discolouration due<br>to planned work. | <p>The Inspectorate classified this event as significant.</p> <p><b>Wessex Water action:</b></p> <ul style="list-style-type: none"> <li>• Provided bottled water on request.</li> <li>• Flushed mains and turned over water in the reservoir to remove discolouration.</li> <li>• Sampled affected area.</li> <li>• Rezoned area (brought in water from different source).</li> <li>• Reviewed their procedures.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• Inadequate training/competence of staff.</li> <li>• The operative failed to follow the valve sequence set out in the method statement, which has been central to previous events.</li> </ul>       |

| Date and duration                  | Area  | Estimate of population affected | Nature and cause of the event                                       | Main actions and findings from the Inspectorate investigation   |
|------------------------------------|---|---------------------------------|---|---|
| 11 May 2009<br>For 2 days<br>(NNE) | Ashington,<br>Pegswood, North<br>of Newcastle | 133,000                         | Brown<br>discolouration due<br>to increased flows<br>in trunk main. | <p>The Inspectorate classified this event as significant.</p> <p><b>Northumbrian Water action:</b></p> <ul style="list-style-type: none"> <li>• Provided bottled water on request.</li> <li>• Sampled affected area.</li> <li>• Review of procedures.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• Supplied unwholesome water in breach of regulations.</li> <li>• The area is at high risk of discolouration and has a mains cleaning undertaking in place which on completion should prevent such events.</li> <li>• The company was aware of the risk of discolouration, but following failed attempts to increase the levels in Hebron SR, they had to increase flows through the trunk main to maintain supplies despite the risk (see <i>Drinking water quality events</i> section).</li> </ul> |

| Date and duration                  | Area                                       | Estimate of population affected | Nature and cause of the event        | Main actions and findings from the Inspectorate investigation  |
|------------------------------------|--|---------------------------------|--------------------------------------|--|
| 12 May 2009<br>For 2 days<br>(WSX) | Tucking Mill works supplying the Bath area | 28,000                          | <i>E.coli</i> at treatment works.    | <p>The Inspectorate classified this event as significant.</p> <p><b>Wessex Water action:</b></p> <ul style="list-style-type: none"> <li>• The treatment works was shut down once the company recognised the site did not achieve adequate disinfection of the water.</li> <li>• The company have confirmed that they are unlikely to re-introduce the works into supply.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• Inadequate treatment process – disinfection.</li> <li>• Recommended review of operational functionality of all sample facilities.</li> <li>• Recommended company reviews disinfection at all of its works to ensure they meet the minimum company standard and risk assessments are updated as appropriate.</li> <li>• A notice was served on the company prohibiting supply from this works until tests to accurately calculate disinfection and necessary improvements are made.</li> <li>• Recommendations were made regarding the location and calibration of monitors.</li> </ul> |
| 13 May 2009<br>For 4 days<br>(DVW) | Chester                                    | 106,000                         | Media interest about taste of water. | <p>The Inspectorate classified this event as significant.</p> <p><b>Dee Valley Water action:</b></p> <ul style="list-style-type: none"> <li>• Sampled affected area.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• The Inspectorate recommended additional monitoring measures to be put in place to protect customers and to provide early warning (e.g. customer complaint triggers, early run to waste of backwash water).</li> </ul>  |

| Date and duration                    | Area  | Estimate of population affected | Nature and cause of the event                | Main actions and findings from the Inspectorate investigation  |
|--------------------------------------|---|---------------------------------|--|--|
| 15 May 2009<br>For 12 hours<br>(SEW) | Bexhill on Sea,<br>Sussex   | 16,405                          | Brown<br>discolouration of<br>unknown cause. | <p>The Inspectorate classified this event as significant.</p> <p><b>South East Water action:</b></p> <ul style="list-style-type: none"> <li>• Sampled affected area.</li> <li>• Flushed mains.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• Cause not identified by company, however, there was some network activity in the area to repair a leak in the days prior to the event.</li> <li>• Recommend future investigational sampling is conducted before and after flushing activities to ensure that the source of contamination can be identified.</li> </ul> |
| 19 May 2009<br>For 6 hours<br>(DWR)  | Llyswen works<br>supplying Hay on<br>Wye, Clyro,<br>Glasbury,<br>Painscastle,<br>Talgarth and<br>Bronllys | 10,000                          | <i>Cryptosporidium.</i>                      | <p>The Inspectorate classified this event as significant.</p> <p><b>Dŵr Cymru Welsh Water action:</b></p> <ul style="list-style-type: none"> <li>• Sampled affected area.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• Recommended the company inform the Inspectorate how this event has been incorporated in the water safety plans.</li> <li>• Recommended the company analyses all samples for appropriate parameters.</li> </ul>  |

| Date and duration                   | Area   | Estimate of population affected | Nature and cause of the event   | Main actions and findings from the Inspectorate investigation  |
|-------------------------------------|--|---------------------------------|---------------------------------|--|
| 19 May 2009<br>For 2 days<br>(TMS)  | Guildford  | 1,250                           | Brown discolouration.           | <p>The Inspectorate classified this event as significant.</p> <p><b>Thames Water action:</b></p> <ul style="list-style-type: none"> <li>• Removed service reservoir from supply.</li> <li>• Repaired faulty equipment.</li> <li>• Sampled affected area.</li> <li>• Shut down treatment works.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• Inadequate contingency planning.</li> <li>• Inadequate risk assessment.</li> </ul>   |
| 20 May 2009<br>For 3 hours<br>(SVT) | Bamford works supplying a large area of Derbyshire and parts of Leicestershire and Nottinghamshire | 180,000                         | Failure of disinfection system. | <p>The Inspectorate classified this event as significant.</p> <p><b>Severn Trent Water action:</b></p> <ul style="list-style-type: none"> <li>• Replaced faulty equipment.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• The failure of the motive water valve to close resulted in bisulphite siphoning through the dosing pump into the treated water stream hence the treated water continued to be dechlorinated despite low chlorine residuals.</li> <li>• Recommended that the company reviews their Regulation 27 risk assessment for this site and submits any update to their Regulation 28(4) risk assessment report to the Inspectorate.</li> <li>• One of four similar events at Bamford works in 2009.</li> <li>• Enforcement action initiated.</li> </ul> |

| Date and duration                    | Area  | Estimate of population affected | Nature and cause of the event                         | Main actions and findings from the Inspectorate investigation  |
|--------------------------------------|---|---------------------------------|---|--|
| 20 May 2009<br>For 24 hours<br>(CAM) | Rivey works<br>supplying Linton,<br>Cambridge | 10,870                          | <i>E.coli</i> in a sample<br>taken from the<br>works. | <p>The Inspectorate classified this event as significant.</p> <p><b>Cambridge Water action:</b></p> <ul style="list-style-type: none"> <li>• Sampled affected area.</li> <li>• Works process review undertaken and all processes found to be operating satisfactorily.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• The final water sample tap at the works was found to be worn and was replaced on 2 June. All samples taken from the final water leaving the works since and for the twelve months prior to the event have been satisfactory.</li> <li>• Criticisms were made about the level of detail provided in the company's report.</li> <li>• Recommended the need to ensure sampling staff promptly report any problems with sampling facilities, particularly final water sampling facilities.</li> <li>• The company should also consider a regular inspection programme for its final water sampling facilities so that any problems can be proactively identified and addressed as required.</li> <li>• A suggestion was made to consider the installation of on-line turbidity monitoring at the works if not already done.</li> </ul> |

| Date and duration                | Area                                      | Estimate of population affected | Nature and cause of the event  | Main actions and findings from the Inspectorate investigation   |
|----------------------------------|---|---------------------------------|--------------------------------|---|
| 21 May 2009<br>For 1 day<br>(UU) | Waterhead works supplying parts of Oldham | 62,710                          | Temporary loss of coagulation. | <p>The Inspectorate classified this event as significant.</p> <p><b>United Utilities Water action:</b></p> <ul style="list-style-type: none"> <li>• Review of procedures.</li> <li>• Replaced faulty equipment.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• Inadequate treatment process.</li> <li>• Sub-optimal dosing of sodium hydroxide into the raw water occurred as a result of a slow response of the new sodium hydroxide dosing system to changes in raw water parameters.</li> <li>• The failsafe coagulation was out of service due to the commissioning of this new sodium hydroxide dosing system 2009.</li> </ul> |

| Date and duration                   | Area   | Estimate of population affected | Nature and cause of the event         | Main actions and findings from the Inspectorate investigation  |
|-------------------------------------|--|---------------------------------|---------------------------------------|--|
| 24 May 2009<br>For 10 days<br>(WSX) | Friar Waddon works supplying the Weymouth and Portland areas of Dorset | 15,295                          | Pesticides (MCPA and MCPB) detection. | <p>The Inspectorate classified this event as significant.</p> <p><b>Wessex Water action:</b></p> <ul style="list-style-type: none"> <li>• Following pollution event at a neighbouring farm, the company turned over water in main service reservoir to reduce concentrations.</li> <li>• The company introduced a blend into Portland zone (only a benefit to part of the zone).</li> <li>• Company resampled in zones, works and service reservoir.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• The site was the subject of a legally binding undertaking for pesticides at the time of the pollution event.</li> <li>• The company failed to notify West Dorset District Council.<br/>Company were not monitoring for pesticides in raw water at the time, recommended this should be implemented.</li> <li>• Recommended that the risk assessment for the site was reviewed in light of this event and a revised report is submitted or confirmation that current report is acceptable.</li> </ul> |

| Date and duration                  | Area                                   | Estimate of population affected | Nature and cause of the event                             | Main actions and findings from the Inspectorate investigation   |
|------------------------------------|--|---------------------------------|---|---|
| 27 May 2009<br>For 1 hour<br>(SWT) | Allers works,<br>supplying<br>Tiverton | 30,000                          | Inadequate disinfection due to change in water treatment. | <p>The Inspectorate classified this event as significant.</p> <p><b>South West Water action:</b></p> <ul style="list-style-type: none"> <li>• Sampled affected area.</li> <li>• Increased chlorine residuals at treatment works.</li> <li>• Repaired faulty equipment.</li> <li>• Review of procedures.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• Critical of inadequate procedures for returning granular activated carbon contactors to supply as no checks on water quality were required or undertaken. The company has since reviewed and updated its procedures to include chlorine demand tests when a contactor has been out of service for more than two weeks. Recommended extending these tests in line with industry best practice.</li> <li>• A critical monitor on the outlet of the filter was not working during the event, which has now been resolved, although a suggestion was made that the number of monitors be reviewed.</li> <li>• Inadequate disinfection during this event and a recommendation was made to implement mechanisms to identify such circumstances at an early stage.</li> <li>• Information provided during the final report was inconsistent.</li> </ul> |

| Date and duration                  | Area                              | Estimate of population affected | Nature and cause of the event   | Main actions and findings from the Inspectorate investigation  |
|------------------------------------|-----------------------------------|---------------------------------|---|--|
| 31 May 2009<br>For 2 days<br>(SVT) | Stafford and the surrounding area | 41,872                          | Brown discolouration due to the disturbance of mains deposits during a peak demand period | <p>The Inspectorate classified this event as significant.</p> <p><b>Severn Trent Water action:</b></p> <ul style="list-style-type: none"> <li>• Sampled affected area.</li> <li>• Satnall service reservoir drained down and inspected.</li> <li>• Mains cleaning programme undertaken.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• Recommended that the company review its working arrangements with South Staffordshire Water to ensure that changes impacting on the hydraulics of the bulk supply are communicated and a risk assessment undertaken of any potential impact on the company's distribution system.</li> <li>• Recommended that the company review the flow data obtained from the bulk supply import at Brindley Bank to ascertain how best this data can be used to predict potential discoloured water in the local area.</li> <li>• Suggested that the company consider installing a turbidity monitor at the outlet of Satnall service reservoir.</li> <li>• Suggested that the company keep its risk assessment for the area under review.</li> </ul> |

| Date and duration                  | Area                                   | Estimate of population affected | Nature and cause of the event             | Main actions and findings from the Inspectorate investigation   |
|------------------------------------|--|---------------------------------|---|---|
| 31 May 2009<br>For 3 days<br>(NNE) | Easington New Marske and Saltburn area | 7,000                           | Brown discolouration due to mains damage. | <p>The Inspectorate classified this event as significant.</p> <p><b>Northumbrian Water action:</b></p> <ul style="list-style-type: none"> <li>• Repaired main.</li> <li>• Rezoned area (brought in water from different source).</li> <li>• Sampled affected area.</li> <li>• Increased chlorine residuals in the distribution system.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• Highly critical that 'no water contacts' were not anticipated by the company, despite the fact that reservoirs were apparently being monitored throughout the event.</li> <li>• Strongly recommended review of alarms and alarm settings at reservoir to ensure that they are appropriate for the site and provide sufficient advance warning of potential problems.</li> </ul> |

| Date and duration                    | Area                     | Estimate of population affected | Nature and cause of the event | Main actions and findings from the Inspectorate investigation  |
|--------------------------------------|--------------------------|---------------------------------|-------------------------------|--|
| 01 Jun 2009<br>For 24 hours<br>(DWR) | Abergele, North<br>Wales | 2,200                           | Cloudy<br>discolouration.     | <p>The Inspectorate classified this event as significant.</p> <p><b>Dŵr Cymru Welsh Water action:</b></p> <ul style="list-style-type: none"> <li>• Sampled affected area.</li> <li>• Flushed mains.</li> <li>• Rezoned area (brought in water from different source).</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• Supplied unwholesome water in breach of regulations.</li> <li>• Inadequate follow-up sampling.</li> <li>• Inadequate number of samples taken.</li> <li>• Sampling was not timely enough.</li> <li>• Recommended that in future the company takes an appropriate numbers of samples in a timely manner for appropriate parameters to determine the nature and extent of an event.</li> <li>• Recommended that the company reviews and updates its site operating manual, telemetry and alarms for this site to ensure consistency is maintained.</li> <li>• Recommended the company reviews the operation of all automated inlet valves at its service reservoirs and, where appropriate, adjusts trigger levels and flow conditions to allow for self-cleansing of the incoming main or alternatively undertakes a risk-based programme of mains flushing.</li> </ul> |

| Date and duration                    | Area  | Estimate of population affected | Nature and cause of the event             | Main actions and findings from the Inspectorate investigation  |
|--------------------------------------|---|---------------------------------|---|--|
| 03 Jun 2009<br>For 12 hours<br>(SEW) | Farnham   | 12,000                          | Brown discolouration due to planned work. | <p>The Inspectorate classified this event as significant.</p> <p><b>South East Water action:</b></p> <ul style="list-style-type: none"> <li>• Flushed mains.</li> <li>• Sampled affected area.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• Inadequate risk assessment.</li> <li>• Initiated enforcement action requiring the company to enter into a legally binding agreement to take action to investigate and mitigate against further discolouration by investigation of Bourne works and supplying distribution system.</li> </ul>   |
| 05 Jun 2009<br>For 24 hours<br>(SST) | Hampton Loade works supplying Sedgeley, West Bromwich and Walsall areas | 912,542                         | <i>E.coli.</i>                            | <p>The Inspectorate classified this event as significant.</p> <p><b>South Staffordshire Water action:</b></p> <ul style="list-style-type: none"> <li>• Sampled affected area.</li> <li>• Carried out investigation at works and with analytical service provider.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• Inadequate investigations into root cause.</li> <li>• Inadequate treatment process – disinfection.</li> <li>• It is not possible to verify whether the most probable cause of the failure is an issue at the works or contamination during analysis by the analytical service provider as proposed by the company.</li> <li>• Recommended that the company carry out adequate investigations to determine the cause.</li> <li>• Suggested that the company types confirmed coliforms in order to inform their investigations.</li> <li>• Recommended that the company reviews its risk assessment at this site to ensure that there are no treatment deficiencies and the quality of raw water is adequately monitored and understood.</li> </ul> |

| Date and duration                    | Area   | Estimate of population affected | Nature and cause of the event                 | Main actions and findings from the Inspectorate investigation   |
|--------------------------------------|--|---------------------------------|---|---|
| 05 Jun 2009<br>For 24 hours<br>(ANG) | Donnington   | 6,863                           | Brown discolouration due to planned flushing. | <p>The Inspectorate classified this event as significant.</p> <p><b>Anglian Water action:</b></p> <ul style="list-style-type: none"> <li>• Flushed mains.</li> <li>• Sampled affected area.</li> <li>• Briefed local staff on lessons learnt.</li> <li>• Updated risk assessment with modelling information on preferred flow rates.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• Recommended appropriate sampling.</li> <li>• Supplied unwholesome water in breach of regulations.</li> </ul>          |
| 05 Jun 2009<br>For 3 days<br>(SEW)   | Chilles service reservoir supplying parts of East Sussex | 70,000                          | Detection of coliforms in treated water.      | <p>The Inspectorate classified this event as significant.</p> <p><b>South East Water action:</b></p> <ul style="list-style-type: none"> <li>• Sampled affected area.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• The Inspectorate suggested that the company continue to optimise treatment to ensure that water leaving the works was of satisfactory quality.</li> <li>• The Inspectorate suggested that the company prioritise monitoring and maintenance of this area of their network.</li> </ul> |
| 08 Jun 2009<br>For 18 hours<br>(YKS) | Old Town area of Barnsley, Wilthorpe and Gawber          | 14,275                          | Brown discolouration due to burst main.       | <p>The Inspectorate classified this event as significant.</p> <p><b>Yorkshire Water action:</b></p> <ul style="list-style-type: none"> <li>• Repaired main.</li> <li>• Flushed mains.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• Satisfactory actions taken.</li> </ul>   |

| Date and duration                 | Area  | Estimate of population affected | Nature and cause of the event  | Main actions and findings from the Inspectorate investigation   |
|-----------------------------------|---|---------------------------------|--|---|
| 09 Jun 2009<br>For 1 day<br>(SEW) | Hindhead service reservoir supplying Hindhead | 8,969                           | Brown discolouration due to loss of supplies (service reservoir emptying). | <p>The Inspectorate classified this event as significant.</p> <p><b>South East Water action:</b></p> <ul style="list-style-type: none"> <li>• Flushed mains.</li> <li>• Sampled affected area.</li> <li>• Reinstated booster pumps.</li> <li>• Reviewed alarm settings and alarm levels in the control room.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• Sampling was not timely enough.</li> <li>• Samples not analysed for appropriate parameters.</li> <li>• Recommended the company review the need for risk assessments to be completed in all circumstances, prior to the commencement of any work.</li> <li>• Recommended the company continue to investigate the cause of the failure of the booster pumps.</li> <li>• Recommended the company continue to investigate the cause of the discolouration events to determine the nature, cause and extent of the mains deposits and sediment.</li> <li>• Recommended the company ensure they report all relevant samples and information is provided in the relevant event report.</li> <li>• Recommended the company carries out appropriate sampling/analysis during all events.</li> <li>• Enforcement action under consideration.</li> </ul> |

| Date and duration                   | Area   | Estimate of population affected | Nature and cause of the event               | Main actions and findings from the Inspectorate investigation  |
|-------------------------------------|--|---------------------------------|---|--|
| 10 Jun 2009<br>For 4 days<br>(DWR)  | Carmel,<br>Llandybie,<br>Tumble, Gorslas                     | 8,000                           | Brown discolouration due to planned work.   | <p>The Inspectorate classified this event as significant.</p> <p><b>Dŵr Cymru Welsh Water action:</b></p> <ul style="list-style-type: none"> <li>• Flushed mains.</li> <li>• Provided bottled water on request.</li> <li>• Sampled affected area.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• Inadequate procedures.</li> <li>• Recommended that the company visually inspect the water entering a service reservoir when inlet valves are opened.</li> </ul>   |
| 17 Jun 2009<br>For 6 hours<br>(DWR) | Llwynon works supplying Cardiff, Merthyr and Caerphilly area | 200,000                         | Loss of ferric dosing due to plant failure. | <p>The Inspectorate classified this event as significant.</p> <p><b>Dŵr Cymru Welsh Water action:</b></p> <ul style="list-style-type: none"> <li>• Repaired faulty equipment.</li> <li>• Sampled affected area.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• Recommended that the company ensure that sampling for <i>Cryptosporidium</i> is considered and initiated at an early stage, particularly for those events where poor coagulation performance is known to be a factor.</li> <li>• Recommended that the company put in place procedures to ensure that such problems are rectified promptly.</li> </ul> |

| Date and duration                 | Area                 | Estimate of population affected | Nature and cause of the event                                  | Main actions and findings from the Inspectorate investigation  |
|-----------------------------------|----------------------|---------------------------------|--|--|
| 19 Jun 2009<br>For 1 day<br>(YKS) | South Sheffield area | 75,000                          | Discolouration caused by manganese deposits due to burst main. | <p>The Inspectorate classified this event as significant.</p> <p><b>Yorkshire Water action:</b></p> <ul style="list-style-type: none"> <li>• Repaired main.</li> <li>• Carried out major rezoning to maintain supplies.</li> <li>• Returned the 24" main to supply knowing that there was a slug of discoloured water to supply to prevent the distribution system running dry.</li> <li>• A short-term discolouration due to the return of the 24" main may have prevented a major discolouration event in South West Yorkshire.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• Although there were a large number of discolouration complaints recorded against this event (over 540), the company did a good job preventing the system from draining down and potentially avoided a major discolouration event from scouring of the mains on recharging distribution system.</li> </ul> |

| Date and duration                  | Area                         | Estimate of population affected | Nature and cause of the event                           | Main actions and findings from the Inspectorate investigation  |
|------------------------------------|------------------------------|---------------------------------|---|--|
| 20 Jun 2009<br>For 3 days<br>(ANG) | Alconbury,<br>Huntingdon     | 8                               | Microbiological contamination following a mains repair. | <p>The Inspectorate classified this event as significant.</p> <p><b>Anglian Water action:</b></p> <ul style="list-style-type: none"> <li>• Repaired main.</li> <li>• Flushed mains.</li> <li>• Issued a boil water notice.</li> <li>• Provided bottled water on request.</li> <li>• Sampled affected area.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• Delays occurred in identifying the area affected due to changes in the location of the actual leak not being communicated.</li> <li>• The company did not disinfect the main following the positive sample results to avoid taste complaints as the area is chloraminated.</li> <li>• Recommended that procedures are updated to address potential mains contamination in chloraminated areas.</li> <li>• Delays in consumer warning through incorrect identification of area affected.</li> </ul> |
| 20 Jun 2009<br>For 8 days<br>(NNE) | Gosforth, North<br>Newcastle | 27,500                          | Brown discolouration due to planned work.               | <p>The Inspectorate classified this event as significant.</p> <p><b>Northumbrian Water action:</b></p> <ul style="list-style-type: none"> <li>• Flushed mains.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• Inadequate risk assessment.</li> <li>• Supplied unwholesome water in breach of regulations.</li> <li>• Recommended that when discolouration contacts have passed the trigger levels sampling is undertaken as soon as practical at properties complaining of discoloured water to determine the extent and degree of discolouration of supplies.</li> <li>• Company did not demonstrate due diligence.</li> </ul>  |

| Date and duration                    | Area   | Estimate of population affected | Nature and cause of the event       | Main actions and findings from the Inspectorate investigation  |
|--------------------------------------|--|---------------------------------|-------------------------------------|--|
| 28 Jun 2009<br>For 1 day<br>(ANG)    | Twelve Acre Wood works supplying Eriswell and Mildenhall area of Suffolk | 55,000                          | Inadequate disinfection.            | <p>The Inspectorate classified this event as significant.</p> <p><b>Anglian Water action:</b></p> <ul style="list-style-type: none"> <li>• Flushed mains.</li> <li>• Increased chlorine residuals at service reservoir.</li> <li>• Repaired faulty equipment.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• Inadequate disinfection due to borehole pumps continuing to operate following works shut down. Disinfectant was added to the water manually.</li> <li>• Inadequate follow-up sampling.</li> </ul> |
| 01 Jul 2009<br>For 5 days<br>(UU)    | Kelsall, Cheshire  | 2,500                           | Coliforms at consumers' properties. | <p>The Inspectorate classified this event as significant.</p> <p><b>United Utilities Water action:</b></p> <ul style="list-style-type: none"> <li>• Sampled affected area.</li> <li>• All relevant staff reminded of the need to follow procedures for sampling during events, to ensure that appropriate and timely samples are taken.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• Samples not analysed for appropriate parameters.</li> <li>• Inadequate follow-up sampling.</li> </ul>                   |
| 03 Jul 2009<br>For 24 hours<br>(DWR) | Builth works Builth Wells, Wales   | 15,000                          | <i>Cryptosporidium.</i>             | <p>The Inspectorate classified this event as significant.</p> <p><b>Dŵr Cymru Welsh Water action:</b></p> <ul style="list-style-type: none"> <li>• Replaced faulty equipment.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• Lack of maintenance of equipment.</li> </ul>  |

| Date and duration                 | Area                   | Estimate of population affected | Nature and cause of the event | Main actions and findings from the Inspectorate investigation  |
|-----------------------------------|------------------------|---------------------------------|-------------------------------|--|
| 05 Jul 2009<br>For 1 day<br>(SWT) | Saracen Way,<br>Penryn | 75                              | Boil water notice.            | <p>The Inspectorate classified this event as significant.</p> <p><b>South West Water action:</b></p> <ul style="list-style-type: none"> <li>• Increased chlorine residuals in the distribution system.</li> <li>• Improved procedures relating to: <ul style="list-style-type: none"> <li>a) any abandoned mains identified during excavations are to be sealed to prevent surface water transfer between excavations;</li> <li>b) all temporary pipework, bypasses etc are to be removed and pieced in prior to the transfer of disinfection equipment;</li> <li>c) any trickle flushing on the system to be double checked and confirmed to be shutdown prior to the transfer of the disinfection equipment;</li> <li>d) ensuring that staff and contractors are aware of the new procedures through a series of familiarisation training.</li> </ul> </li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• Inadequate procedures.</li> <li>• Recommended that where booster chlorination is installed that close monitoring of the chlorine residuals be undertaken especially during inclement weather.</li> </ul> |

| Date and duration                  | Area                 | Estimate of population affected | Nature and cause of the event   | Main actions and findings from the Inspectorate investigation  |
|------------------------------------|----------------------|---------------------------------|---|--|
| 06 Jul 2009<br>For 1 day<br>(UU)   | Parts of Liverpool   | 50,000                          | Loss of supplies/poor pressure due to mains damage.   | <p>The Inspectorate classified this event as significant.</p> <p><b>United Utilities Water action:</b></p> <ul style="list-style-type: none"> <li>• Repaired main.</li> <li>• Sampled affected area.</li> <li>• Rezoned area (brought in water from different source).</li> <li>• Review of procedures.</li> <li>• Flushed mains.</li> <li>• Provided an alternative supply by tanker/bowser.</li> <li>• Provided bottled water on request.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• Inadequate training/competence of staff.</li> <li>• Inadequate procedures.</li> <li>• A contractor working on behalf of UU broke into a live 40" main instead of a 44" main which was drained down for planned renovation work, despite the records being correct.</li> </ul> |
| 15 Jul 2009<br>For 1 week<br>(VEA) | Wivenhoe, Colchester | 4,700                           | Microbiological contamination in the distribution system following cessation of booster chlorination. | <p>The Inspectorate classified this event as significant.</p> <p><b>Veolia Water East action:</b></p> <ul style="list-style-type: none"> <li>• Sampled affected area.</li> <li>• As part of a wider trihalomethane control strategy, the company had ceased rechlorination at Elmstead Market reservoir, but restarted it in response to this event.</li> <li>• The internal pipework of the original sample location was disinfected.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• Sample result notification procedures not followed.</li> <li>• An inappropriate sampling location was used during the investigation.</li> </ul>  |

| Date and duration                    | Area  | Estimate of population affected | Nature and cause of the event                    | Main actions and findings from the Inspectorate investigation   |
|--------------------------------------|---|---------------------------------|--|---|
| 16 Jul 2009<br>For 12 hours<br>(DWR) | Llanigon service reservoir supplying the Hay on Wye area      | 3,750                           | Loss of supplies/poor pressure.                  | <p>The Inspectorate classified this event as significant.</p> <p><b>Dŵr Cymru Welsh Water action:</b></p> <ul style="list-style-type: none"> <li>• Rezoned area (brought in water from different source).</li> <li>• Provided an alternative supply by tanker/bowser.</li> <li>• Provided bottled water on request.</li> <li>• Sampled affected area.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• The Inspectorate was highly critical that it was necessary for the company to run Llyswen works to waste following issues with pH, which resulted in the drain down of Llanigon service reservoir and subsequent loss of supplies downstream.</li> <li>• Critical of the company for delays in the construction of the new Kalic plant to address the pH dosing issues, which have caused events previously.</li> <li>• Suggested that contingency measures be put in place and procedures implemented until the new lime dosing plant is fully commissioned.</li> </ul> |
| 18 Jul 2009<br>For 15 hours<br>(UU)  | Hodder works supplying Preston, Ribble Valley and Fylde Coast | 620,302                         | Loss of coagulation and failure of disinfection. | <p>The Inspectorate classified this event as significant.</p> <p><b>United Utilities Water action:</b></p> <ul style="list-style-type: none"> <li>• Sampled affected area.</li> <li>• Review of procedures.</li> <li>• Company carried out a number of actions to restore the coagulation process to normal.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• Inadequate treatment process – clarification.</li> <li>• <i>Cryptosporidium</i> sampling is recommended at sites following raw water deterioration and lack of effective coagulation.</li> </ul>  |

| Date and duration                  | Area  | Estimate of population affected | Nature and cause of the event                     | Main actions and findings from the Inspectorate investigation  |
|------------------------------------|---|---------------------------------|---|--|
| 18 Jul 2009<br>For 2 days<br>(SWT) | Bastreet works supplying Launceston, Cornwall | 27,000                          | Coagulation problems and <i>Cryptosporidium</i> . | <p>The Inspectorate classified this event as significant.</p> <p><b>South West Water action:</b></p> <ul style="list-style-type: none"> <li>• Sampled affected area.</li> <li>• Changes made to improve responsiveness of works to changes in raw water quality, this includes an additional alarm for raw water colour to provide an 'early warning' of potential problems.</li> <li>• Express analysis requested for subsequent <i>Cryptosporidium</i> samples but no further oocysts detected.</li> <li>• The company has taken action to improve control of the coagulation process at the works.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• The risk of <i>Cryptosporidium</i> was identified in the company's risk assessment, for which the mitigation is designated to be multiple barriers in place. This is verified by continuous monitoring for <i>Cryptosporidium</i> in the treated water and monthly in the raw water.</li> <li>• Prior to this event heavy rain caused increased raw water colour. As a result, problems with coagulation control were experienced and subsequently the treated water was found to contain <i>Cryptosporidium</i>.</li> <li>• A suggestion was made regarding notification of all appropriate stakeholders for reportable events.</li> </ul> |

| Date and duration                    | Area                                    | Estimate of population affected | Nature and cause of the event                     | Main actions and findings from the Inspectorate investigation   |
|--------------------------------------|---|---------------------------------|---|---|
| 22 Jul 2009<br>For 24 hours<br>(NNE) | Seahouses and Newham,<br>Northumberland | 4,125                           | Coliforms and <i>E.coli</i> at service reservoirs | <p>The Inspectorate classified this event as significant.</p> <p><b>Northumbrian Water action:</b></p> <ul style="list-style-type: none"> <li>• Issued a boil water notice.</li> <li>• Rezoned area (brought in water from different source).</li> <li>• Sampled affected area.</li> <li>• Increased chlorine residuals in the distribution system.</li> <li>• Provided bottled water on request.</li> <li>• Flushed mains.</li> <li>• Removed service reservoir from supply and inspected.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• Inadequate procedures.</li> <li>• Ensure that manual dosing of chemicals is only undertaken in a controlled manner which minimises the impact on consumers.</li> </ul> |
| 30 Jul 2009<br>For 1 day<br>(YKS)    | Sheffield                               | 18,750                          | Brown discolouration due to burst main.           | <p>The Inspectorate classified this event as significant.</p> <p><b>Yorkshire Water action:</b></p> <ul style="list-style-type: none"> <li>• Repaired main.</li> <li>• Sampled affected area.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• All complaints received before the burst was repaired.</li> <li>• The area is subject to a legally binding programme of work for mains cleaning.</li> </ul>  |

| Date and duration                   | Area              | Estimate of population affected | Nature and cause of the event                  | Main actions and findings from the Inspectorate investigation   |
|-------------------------------------|-------------------|---------------------------------|--|---|
| 02 Aug 2009<br>For 12 hours<br>(UU) | Tyldesley, Bolton | 7,980                           | Loss of supplies/poor pressure due burst main. | <p>The Inspectorate classified this event as significant.</p> <p><b>United Utilities Water action:</b></p> <ul style="list-style-type: none"> <li>• Flushed mains.</li> <li>• Provided an alternative supply by tanker/bowser.</li> <li>• Rezoned area (brought in water from different source).</li> <li>• Sampled affected area.</li> <li>• The company also monitored the appearance of the water at hydrants in the distribution system.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• Inadequate risk assessment.</li> <li>• It was suggested that the company reviews its procedures to ensure that any repair or installation work carried out on mains is sampled according to a risk-based criteria.</li> </ul> |
| 04 Aug 2009<br>For 4 hours<br>(YKS) | Geadless          | 5,000                           | Brown discolouration due to planned work.      | <p>The Inspectorate classified this event as significant.</p> <p><b>Yorkshire Water action:</b></p> <ul style="list-style-type: none"> <li>• Sampled affected area.</li> <li>• Flushed mains.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• Discolouration occurred after a main was isolated and drained down via a washout in preparation for rehabilitation work to commence.</li> </ul>  |

| Date and duration                  | Area  | Estimate of population affected | Nature and cause of the event  | Main actions and findings from the Inspectorate investigation  |
|------------------------------------|---|---------------------------------|--|--|
| 06 Aug 2009<br>For 1 day<br>(WSX)  | Winsley service reservoir supplying Bradford on Avon, Wiltshire     | 1,000                           | Loss of supplies/poor pressure due to structural failure at service reservoir. | <p>The Inspectorate classified this event as significant.</p> <p><b>Wessex Water action:</b></p> <ul style="list-style-type: none"> <li>• Replaced faulty equipment.</li> <li>• Sampled affected area.</li> <li>• Review of procedures.</li> <li>• Provided bottled water on request.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• Inadequate supply of critical spares, although company has taken actions to rectify this.</li> <li>• Inadequate checks and procedures in place at the time, the company have also addressed this issue.</li> </ul>                      |
| 06 Aug 2009<br>For 3 days<br>(TMS) | Great Rissington service reservoir serving Great Rissington village | 470                             | Microbiological contamination at reservoir.                                    | <p>The Inspectorate classified this event as significant.</p> <p><b>Thames Water action:</b></p> <ul style="list-style-type: none"> <li>• By-passed service reservoir.</li> <li>• Issued a boil water notice.</li> <li>• Provided bottled water on request.</li> <li>• Repaired main.</li> <li>• Sampled affected area.</li> <li>• Flushed mains.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• Company to review reservoir procedures with respect to valving positions.</li> <li>• Company should incorporate lessons from this event into water safety plans.</li> </ul> |

| Date and duration                   | Area   | Estimate of population affected | Nature and cause of the event                       | Main actions and findings from the Inspectorate investigation  |
|-------------------------------------|--|---------------------------------|---|--|
| 06 Aug 2009<br>For 3 weeks<br>(WSX) | Friar Waddon works supplying the Weymouth and Portland areas of Dorset | 15,295                          | Pesticide (MCPA and MCPB)                           | <p>The Inspectorate classified this event as serious.</p> <p><b>Wessex Water action:</b></p> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• Further exceedance of the pesticide standard during the investigation and resolution of the previous event in May at this works. The cause was the same and a further legally binding undertaking was required from the company to secure compliance with the standard in the future.</li> </ul>  |
| 07 Aug 2009<br>For 5 days<br>(SWT)  | Dousland works, Tavistock, Plymouth and South Hams                     | 2,500                           | Failure of lime dosing and <i>Cryptosporidium</i> . | <p>The Inspectorate classified this event as significant.</p> <p><b>South West Water action:</b></p> <ul style="list-style-type: none"> <li>• Replaced faulty equipment.</li> <li>• Sampled affected area.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• Inadequate treatment process – failure of lime dosing system occurred at the time of three consecutive detections of <i>Cryptosporidium</i> oocysts.</li> <li>• Filtered water turbidity remained below 1NTU and disinfection was maintained.</li> </ul> |

| Date and duration                   | Area  | Estimate of population affected | Nature and cause of the event   | Main actions and findings from the Inspectorate investigation  |
|-------------------------------------|---|---------------------------------|---|--|
| 11 Aug 2009<br>For 2 weeks<br>(ANG) | Newspring works supplying Biggleswade and Pottton, Bedfordshire | 40,363                          | Fluoride overdosing due to lack of adherence to the Code of Practice. | <p>The Inspectorate classified this event as significant.</p> <p><b>Anglian Water action:</b></p> <ul style="list-style-type: none"> <li>• Reviewed procedures.</li> <li>• Shutdown fluoride dosing .</li> <li>• Reviewed all fluoride dosing plants for compliance with the Technical Code of Practice and corrected all n on-conformities, or shut dosing plants down where non-conformities could not be rectified .</li> <li>• Reviewed training procedures and rebriefed staff where appropriate.</li> <li>• Reviewed response to exceedances of internal trigger for fluoride.</li> <li>• Inadequate training /competence of staff.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• Critical of numerous missed opportunities to prevent this event.</li> <li>• Noted the company has reviewed response to exceedances of the internal trigger for fluoride and reviewed relevant training.</li> <li>• Fluoridation plant at Newspring works was not fully compliant with the minimum requirements of the Technical Code of Practice for Fluoridation.</li> <li>• Recommended the company ensure there are robust systems in place to allow a full assessment of data which would identify when dosing systems are not in control.</li> <li>• Recommended prompt notification to the Inspectorate.</li> </ul> |

| Date and duration                   | Area                      | Estimate of population affected | Nature and cause of the event | Main actions and findings from the Inspectorate investigation   |
|-------------------------------------|---------------------------|---------------------------------|-------------------------------|---|
| 12 Aug 2009<br>For 72 hours<br>(UU) | Hazel Grove,<br>Stockport | 4,825                           | Issue of do not drink notice. | <p>The Inspectorate classified this event as significant.</p> <p><b>United Utilities Water action:</b></p> <ul style="list-style-type: none"> <li>• Issued a do not drink notice.</li> <li>• Sampled affected area.</li> <li>• Localised flushing.</li> <li>• Fitted double check valve to protect water main.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• Suggested that the company reviews its procedures to ensure that formal written (as opposed to verbal) instructions to third parties are issued when precautionary advice is given to protect public health.</li> </ul> |

| Date and duration                 | Area   | Estimate of population affected | Nature and cause of the event                    | Main actions and findings from the Inspectorate investigation   |
|-----------------------------------|--|---------------------------------|--|---|
| 13 Aug 2009<br>For 10 weeks (ESK) | Walpole works, supplying parts of Suffolk including Halesworth and Southwold | 14,999                          | Musty taste or odour due to works refurbishment. | <p>The Inspectorate classified this event as significant.</p> <p><b>Essex and Suffolk Water action:</b></p> <ul style="list-style-type: none"> <li>• Reviewed procedures.</li> <li>• Sampled affected area.</li> <li>• The company carried out extensive investigations into the cause of the problems, including the analytical methodology used. A programme of filter media replacement has been completed to resolve the issue.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• Investigations were undertaken into regulatory sample failures and consumer contacts were not received initially. Only one of these was described as 'stagnant', most were 'chlorine' taste and odour, although other odour descriptors used were 'wet dog' and 'pencil'.</li> <li>• Criticisms were made that no proactive consumer warning was initiated prior to the new treatment process going into supply. A suggestion was made to review procedures for commissioning of new plant to ensure that the need for consumer warning is considered as part of the process and initiated where appropriate.</li> <li>• Criticisms were made about the risk assessment for utilising 'old' media in advance of commissioning of the new plant.</li> <li>• Recommended that procedures and risk assessments are updated in light of lessons learnt from this event.</li> </ul> |

| Date and duration                    | Area   | Estimate of population affected | Nature and cause of the event                     | Main actions and findings from the Inspectorate investigation   |
|--------------------------------------|--|---------------------------------|---|---|
| 16 Aug 2009<br>For 48 hours<br>(SVT) | Bamford works supplying a large area of Derbyshire and parts of Leicestershire and Nottinghamshire | 180,000                         | Inadequate disinfection due to power failure.     | <p>The Inspectorate classified this event as significant.</p> <p><b>Severn Trent Water action:</b></p> <ul style="list-style-type: none"> <li>• Sampled affected area.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• Highly critical of risk assessment not identifying appropriate risks.</li> <li>• One of four events at Bamford works in 2009 involving compromised contact time following power failure and works restart.</li> <li>• Contact time was compromised for a period of one hour after power to the ferric dosing and hypochlorite generation and dosing system was not restored.</li> <li>• Enforcement action initiated.</li> </ul>  |
| 20 Aug 2009<br>For 4 days<br>(DWR)   | Treharris, Wales   | 52,500                          | Loss of supplies/poor pressure due to burst main. | <p>The Inspectorate classified this event as significant. The Inspectorate initiated enforcement action requiring the company to enter into a legally binding agreement to take action to investigate and mitigate against further discolouration of water supplies.</p> <p><b>Dŵr Cymru Welsh Water action:</b></p> <ul style="list-style-type: none"> <li>• Repaired main.</li> <li>• Provided bottled water on request.</li> <li>• Provided an alternative supply by tanker/bowser.</li> <li>• Sampled affected area.</li> <li>• Investigated elevated concentrations of aluminium from upstream treatment works.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• Recommended the company ensures all relevant information is provided in their 20 day report.</li> </ul> |

| Date and duration                  | Area  | Estimate of population affected | Nature and cause of the event   | Main actions and findings from the Inspectorate investigation   |
|------------------------------------|---|---------------------------------|---|---|
| 25 Aug 2009<br>For 1 day<br>(DWR)  | Spa service reservoir supplying Pontardawe, Swansea         | 8                               | Boil notice issued due to microbiological contamination at service reservoir. | <p>The Inspectorate classified this event as significant.</p> <p><b>Dŵr Cymru Welsh Water action:</b></p> <ul style="list-style-type: none"> <li>• Issued a boil water notice.</li> <li>• Increased chlorine residuals at service reservoir.</li> <li>• Sampled affected area.</li> <li>• Removed service reservoir from supply.</li> <li>• The company have now permanently abandoned the service reservoir.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• Recommended that the company review its procedures to ensure that where an asset is proposed for abandonment, particularly as a result of water quality risks, that abandonment is progressed at the earliest possible opportunity.</li> </ul> |
| 26 Aug 2009<br>For 2 days<br>(YKS) | Elvington works supplying parts of South and West Yorkshire | 2,000,000                       | Failure of disinfection.  | <p>The Inspectorate classified this event as significant.</p> <p><b>Yorkshire Water action:</b></p> <ul style="list-style-type: none"> <li>• Sampled affected area.</li> <li>• Since the event the company have reviewed and amended their procedure for the start-up of Elvington works.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• Inadequate procedures.</li> <li>• Recommended that the company carries out appropriate sampling when returning any WTWs to supply.</li> <li>• Recommended that the company undertakes a full documented risk assessment prior to any water treatment works or process shutdown.</li> </ul>   |

| Date and duration                    | Area  | Estimate of population affected | Nature and cause of the event | Main actions and findings from the Inspectorate investigation  |
|--------------------------------------|---|---------------------------------|-------------------------------|--|
| 27 Aug 2009<br>For 24 hours<br>(DWR) | Crai works and supply zones supplying the Upper Swansea Valley area | 23,750                          | Iron.                         | <p>The Inspectorate classified this event as significant.</p> <p><b>Dŵr Cymru Welsh Water action:</b></p> <ul style="list-style-type: none"> <li>• Review of procedures.</li> <li>• A works instruction issued to prevent this type of incident occurring again.</li> </ul> <p><b>DWI Comments and Findings:</b></p> <ul style="list-style-type: none"> <li>• Investigation ongoing.</li> <li>• Inadequate procedures.</li> <li>• Inadequate treatment process – Filtration.</li> <li>• The discolouration was caused by high headloss due to the flow being restricted at the filters and not at the reservoir outlet or the master filter outlet flow. This has been addressed by the issue of a works instruction to prevent it happening again.</li> </ul> |

| Date and duration                  | Area  | Estimate of population affected | Nature and cause of the event       | Main actions and findings from the Inspectorate investigation   |
|------------------------------------|---|---------------------------------|-------------------------------------|---|
| 28 Aug 2009<br>For 4 days<br>(NNE) | North Charlton service reservoir supplying Beadnell and Seahouses, Northumberland | 1,353                           | <i>E.coli</i> at service reservoir. | <p>The Inspectorate classified this event as significant.</p> <p><b>Northumbrian Water action:</b></p> <ul style="list-style-type: none"> <li>• Sampled affected area.</li> <li>• Removed service reservoir from supply.</li> <li>• Increased chlorine residuals at service reservoir.</li> <li>• Localised flushing was carried out to improve those residuals that remained low or where adverse sample results were detected.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• Inadequate procedures.</li> <li>• Recommended that the company ensures that manual dosing of chemicals is only undertaken in a controlled manner which minimises the impact on consumers.</li> <li>• Recommended that the company considers carrying out enhanced surveillance and longer term monitoring within the affected supply system for a suitable period, and that any further sample non-compliance associated with this supply system is thoroughly investigated to determine any possible link to these events (given that other SRs had failed with coliforms and <i>E.coli</i> in July, see <i>Drinking water quality events</i> section).</li> </ul> |

| Date and duration                  | Area   | Estimate of population affected | Nature and cause of the event             | Main actions and findings from the Inspectorate investigation   |
|------------------------------------|--|---------------------------------|---|---|
| 31 Aug 2009<br>For 4 days<br>(SVT) | Glenfield and Narborough areas of Leicestershire | 41,000                          | Brown discolouration due to burst main.   | <p>The Inspectorate classified this event as significant.</p> <p><b>Severn Trent Water action:</b></p> <ul style="list-style-type: none"> <li>• Sampled affected area.</li> <li>• Company took decision not to flush the mains in the affected area to avoid exacerbating the issue, but instead advised consumers to gently flush their taps.</li> <li>• Company carried out monitoring by calling back consumers to confirm that this action had been effective.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• Sampling was not timely enough.</li> <li>• Recommended that company take this opportunity to brief all relevant staff of the importance of adhering to company procedure, and also carries out a review of training records to assess staff competency in relevant procedures.</li> </ul> |
| 03 Sep 2009<br>For 1 day<br>(BRL)  | Westbury on Trym and Henleaze, Bristol           | 35,278                          | Brown discolouration due to planned work. | <p>The Inspectorate classified this event as significant.</p> <p><b>Bristol Water action:</b></p> <ul style="list-style-type: none"> <li>• Sampled affected area.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• Inadequate sampling as turbidity was only measured once during the flushing and revalving operations. More monitoring would have assisted in understanding the effectiveness of the work being carried out.</li> <li>• The trunk mains feeding the area are planned for renovation as part of a legally binding undertaking, but the two zones involved are not included – recommended that the company reviews its distribution strategy and confirms how they plan to reduce the risk of discolouration.</li> </ul>  |

| Date and duration                   | Area   | Estimate of population affected | Nature and cause of the event                                     | Main actions and findings from the Inspectorate investigation  |
|-------------------------------------|--|---------------------------------|---|--|
| 04 Sep 2009<br>For 3 days<br>(UU)   | Ulpha works supplying parts of south west Cumbria                    | 72,000                          | Failure of coagulation and <i>Cryptosporidium</i> in final water. | <p>The Inspectorate classified this event as significant.</p> <p><b>United Utilities Water action:</b></p> <ul style="list-style-type: none"> <li>• Review of procedures.</li> <li>• Replaced faulty equipment.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• Lack of maintenance of equipment.</li> <li>• Three consecutive <i>Cryptosporidium</i> results in August 2009.</li> <li>• Suboptimal coagulation identified.</li> <li>• Turbidity pre-disinfection remained below 1NTU.</li> </ul>   |
| 11 Sep 2009<br>For 12 hours<br>(UU) | Lancaster works supplying Lancaster, Morecambe and Langthwaite areas | 118,000                         | Aluminium levels at works due to plant failure.                   | <p>The Inspectorate classified this event as significant.</p> <p><b>United Utilities Water action:</b></p> <ul style="list-style-type: none"> <li>• Replaced faulty equipment.</li> <li>• Sampled affected area.<br/>One vulnerable customer identified (dialysis) and alternative supplies provided.</li> <li>• Improvements made to the aluminium dosing and monitoring arrangements at the works.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• Critical of delays in escalation of water quality alarms.</li> <li>• Critical that no re-sample appears to have been taken to verify that water quality at the service reservoir had returned back within normal limits.</li> <li>• Critical that sampling surveys did not commence until 11 September given that problems were initially experienced on 9 September.</li> </ul> |

| Date and duration                  | Area  | Estimate of population affected | Nature and cause of the event                              | Main actions and findings from the Inspectorate investigation  |
|------------------------------------|---|---------------------------------|--|--|
| 14 Sep 2009<br>For 6 hours<br>(UU) | Worsthorne works supplying the Burnley area | 35,000                          | Iron in final water due to plant failure.                  | <p>The Inspectorate classified this event as significant.</p> <p><b>United Utilities Water action:</b></p> <ul style="list-style-type: none"> <li>• Sampled affected area.</li> <li>• Replaced faulty equipment.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• Recommended that the company takes action to ensure the operational Regional Control sufficiently investigates treatment processes when alarms occur.</li> <li>• Ensure alarms are implemented at appropriate levels to ensure that treated water quality meets the standards and regulations of the Water Quality Regulations.</li> </ul> |
| 16 Sep 2009<br>For 4 days<br>(SRN) | Luton works supplying parts of Kent         | 190,000                         | Detection of <i>E.coli</i> and coliforms in treated water. | <p>The Inspectorate classified this event as significant.</p> <p><b>Southern Water action:</b></p> <ul style="list-style-type: none"> <li>• Increased chlorine residuals at treatment works.</li> <li>• Sampled affected area.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• Regulation 28(4) Notice issued as deficiency noted with works performance under full flow conditions.</li> </ul>   |

| Date and duration                 | Area  | Estimate of population affected | Nature and cause of the event                                | Main actions and findings from the Inspectorate investigation  |
|-----------------------------------|---|---------------------------------|--|--|
| 20 Sep 2009<br>For 1 day<br>(SRN) | Burham works, Otterbourne works, Twyford works and Broadwater works supplying West Sussex | 340,000                         | Coliforms and <i>E.coli</i> due to laboratory contamination. | <p>The Inspectorate classified this event as significant.</p> <p><b>Southern Water action:</b></p> <ul style="list-style-type: none"> <li>• Sampled affected area.</li> <li>• Typing of <i>E.coli</i> showed it to be the result of laboratory contamination.</li> <li>• Full investigation undertaken by external consultants of analytical service provider.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• Incomplete separation of the routine analysis and the analytical quality control tests.</li> <li>• Highly critical that this deficiency had not been identified earlier by the laboratories.</li> <li>• Recommended that investigations are conducted when negative controls contain colonies. Abnormally high counts and failed quality control plate were not investigated.</li> <li>• Recommended that the laboratory reviews its procedures for the checking and interpretation of results associated with environmental monitoring.</li> <li>• Recommended that laboratories ensure good aseptic technique is practiced throughout the laboratories at all times.</li> <li>• Recommended Southern Water continues to carefully monitor the practices at the laboratories to ensure an adequate response to all the recommendations by its consultants.</li> <li>• Recommended that evidence is provided, to demonstrate the analysts and/or their team leader are compliant with Regulation 16(2)(d)(i).</li> <li>• Recommended the company review its arrangements for notifying the Inspectorate of events to ensure it complies with the requirements of the Direction.</li> </ul> |

| Date and duration                  | Area   | Estimate of population affected | Nature and cause of the event  | Main actions and findings from the Inspectorate investigation   |
|------------------------------------|--|---------------------------------|--|---|
| 26 Sep 2009<br>For 9 days<br>(ESK) | Great Yarmouth                                 | 75                              | Microbiological contamination following the installation of a temporary bypass to facilitate rehabilitation. | <p>The Inspectorate classified this event as significant.</p> <p><b>Essex and Suffolk Water action:</b></p> <ul style="list-style-type: none"> <li>• Flushed mains.</li> <li>• Issued a boil water notice.</li> <li>• Increased chlorine residuals in the distribution system.</li> <li>• Sampled affected area.</li> <li>• Review of procedures.</li> <li>• The bypass has now been removed following completion of the rehabilitation work.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• Analysis of samples was not timely to confirm the microbiological security of the overland bypass.</li> <li>• The company did not have procedures in place for installing a temporary overland main which must be addressed to incorporate lessons from this event.</li> </ul> |
| 01 Oct 2009<br>For 1 day<br>(UU)   | Springfield works supplying parts of Southport | 141,600                         | <i>E.coli</i> in treated water leaving a works.  | <p>The Inspectorate classified this event as significant.</p> <p><b>United Utilities Water action:</b></p> <ul style="list-style-type: none"> <li>• Sampled affected area.</li> <li>• Company carried out a site and process audit in response to this failure however no specific cause was found.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• Suggested the company investigate the reason for the increase in raw turbidity around the time the sample was taken, which appears to be quite atypical for the site.</li> </ul>   |

| Date and duration                 | Area  | Estimate of population affected | Nature and cause of the event           | Main actions and findings from the Inspectorate investigation  |
|-----------------------------------|---|---------------------------------|---|--|
| 03 Oct 2009<br>For 1 day<br>(SST) | Hampton Loade works supplying Sedgeley, West Bromwich and Walsall areas | 912,542                         | <i>E.coli.</i>                          | <p>The Inspectorate classified this event as significant.</p> <p><b>South Staffordshire Water action:</b></p> <ul style="list-style-type: none"> <li>• Carried out an extensive investigation at the works.</li> <li>• Contact Tanks inspected and cleaned.</li> <li>• Ongoing large volume microbiological sampling.</li> <li>• Sample bottle storage arrangements inspected</li> <li>• Suction well inspections performed.</li> <li>• Checks to determine sampling procedure was followed.</li> <li>• Investigations into analytical methodology.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• Enforcement action has been initiated.</li> <li>• Company to keep DWI informed of outcome of further investigations.</li> </ul> |
| 04 Oct 2009<br>For 2 days<br>(UU) | Sutton Manor and Sutton Leach areas of St Helens                        | 27,968                          | Brown discolouration due to burst main. | <p>The Inspectorate classified this event as significant.</p> <p><b>United Utilities Water action:</b></p> <ul style="list-style-type: none"> <li>• Repaired main.</li> <li>• Rezoned area (brought in water from different source).</li> <li>• Provided an alternative supply by tanker/bowser.</li> <li>• Sampled affected area.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• Satisfactory investigation and appropriate action taken by the company.</li> </ul>   |

| Date and duration                 | Area  | Estimate of population affected | Nature and cause of the event                      | Main actions and findings from the Inspectorate investigation  |
|-----------------------------------|---|---------------------------------|--|--|
| 05 Oct 2009<br>For 2 days<br>(UU) | Lightshaw works supplying parts of Lancashire, Cheshire and Cumbria | 138,600                         | <i>E.coli</i> in final water due to plant failure. | <p>The Inspectorate classified this event as significant.</p> <p><b>United Utilities Water action:</b></p> <ul style="list-style-type: none"> <li>• Sampled affected area.</li> <li>• Repaired faulty equipment.</li> <li>• Shut down treatment works.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• Inadequate treatment process – disinfection.</li> <li>• Critical that the design of the sample lines for the chlorine residual monitor is such that at low contact tank levels it is not possible to obtain accurate readings.</li> <li>• Recommended that the company rectify this issue before the treatment works is returned to supply, thus ensuring continuous, accurate chlorine monitoring at all times.</li> <li>• Highly critical that the potential for ingress had not been identified earlier, as the contact tank had been inspected in April 2009 and cleaned in September 2009.</li> <li>• Company to provide evidence that the holes to the dividing wall between the pump well and the contact tank have been sealed, the treatment works will remain out of supply until this work has been completed.</li> <li>• Critical that the company is unable to provide robust evidence that the water was adequately disinfected on this occasion.</li> </ul> |

| Date and duration                  | Area                                 | Estimate of population affected | Nature and cause of the event             | Main actions and findings from the Inspectorate investigation  |
|------------------------------------|--------------------------------------|---------------------------------|---|--|
| 07 Oct 2009<br>For 6 days<br>(SVT) | Eyton works,<br>Eyton,<br>Shropshire | 1,625                           | Nitrate due to blending failure.          | <p>The Inspectorate classified this event as significant.</p> <p><b>Severn Trent Water action:</b></p> <ul style="list-style-type: none"> <li>• Repaired faulty equipment.</li> <li>• Sampled affected area.</li> <li>• Shut down treatment works temporarily while investigations were ongoing.</li> <li>• Company carried out a full root cause analysis of this event and made changes accordingly, including a review of its procedures for monitoring of new installations and reiteration of the need for prompt investigation of water quality events with staff.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• Number of criticisms made regarding internal and external communications and the need for thorough investigations where problems arise.</li> </ul> |
| 08 Oct 2009<br>For 1 day<br>(UU)   | Parts of Bolton                      | 11,112                          | Brown discolouration due to planned work. | <p>The Inspectorate classified this event as significant.</p> <p><b>United Utilities Water action:</b></p> <ul style="list-style-type: none"> <li>• Provided bottled water on request.</li> <li>• Sampled affected area.</li> <li>• Visual checks were carried out.</li> <li>• The company refreshed the main prior to reinstatement of the main.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• Inadequate procedures.</li> <li>• Suggested that the company should amend its procedures to warn consumers of possible discolouration during high risk operations.</li> </ul>   |

| Date and duration                    | Area   | Estimate of population affected | Nature and cause of the event                    | Main actions and findings from the Inspectorate investigation   |
|--------------------------------------|--|---------------------------------|--|---|
| 08 Oct 2009<br>For 3 days<br>(TMS)   | Shalford works supplying Godalming, Witley and South Guildford, Surrey | 50,000                          | <i>Cryptosporidium</i> and coagulation problems. | <p>The Inspectorate classified this event as significant.</p> <p><b>Thames Water action:</b></p> <ul style="list-style-type: none"> <li>• Repaired faulty equipment.</li> <li>• Company is currently introducing flow alarms for ferric dosing which will reduce the risk of a recurrence.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• Suggest the company considers whether separate dosing lines with automatic pump change over may be beneficial in minimising risk of a blockage.</li> </ul>  |
| 09 Oct 2009<br>For 75 hours<br>(SWT) | Roskrow, Penryn near Falmouth  | 9,700                           | Brown discolouration.                            | <p>The Inspectorate classified this event as significant.</p> <p><b>South West Water action:</b></p> <ul style="list-style-type: none"> <li>• Flushed mains.</li> <li>• Updated their procedures for mains swabbing.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• Inadequate procedures for swabbing including keeping a section of main in supply at the time, when a parallel main was available.</li> <li>• Inadequate risk assessment.</li> <li>• The Inspectorate were critical that the company were unable to determine how a swab was not recovered at the planned flushing point and was located in a downstream service reservoir 11 days later.</li> </ul> |

| Date and duration                    | Area  | Estimate of population affected | Nature and cause of the event                | Main actions and findings from the Inspectorate investigation   |
|--------------------------------------|---|---------------------------------|--|---|
| 13 Oct 2009<br>For 12 hours<br>(DWR) | Bridgend in Swansea   | 7,500                           | Brown discolouration.                        | <p>The Inspectorate classified this event as significant.</p> <p><b>Dŵr Cymru Welsh Water action:</b></p> <ul style="list-style-type: none"> <li>• Flushed mains.</li> <li>• Provided bottled water on request.</li> <li>• Sampled affected area.</li> <li>• Company circulated a bulletin to Network Inspectors regarding the identification of geared valves on trunk mains.</li> <li>• Company reminded the individual to follow company procedures.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• Recommended the information system was updated as soon as possible.</li> <li>• The Inspectorate commended the company for proactively calling back consumers who complained of discolouration, to help establish the extent and duration of this event.</li> </ul> |
| 14 Oct 2009<br>For 1 days<br>(UU)    | Huntingdon works supplying parts of Cheshire and Merseyside | 1,500,000                       | <i>Cryptosporidium</i> due to plant failure. | <p>The Inspectorate classified this event as significant.</p> <p><b>United Utilities Water action:</b></p> <ul style="list-style-type: none"> <li>• Repaired faulty equipment.</li> <li>• The company carried out a thorough audit and investigation of the treatment process.</li> <li>• Changes have also been made to process alarms as a result of this event.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• Suggested that the company review its maintenance procedures to ensure that repairs to critical equipment are carried out promptly.</li> </ul>  |

| Date and duration                   | Area                  | Estimate of population affected | Nature and cause of the event  | Main actions and findings from the Inspectorate investigation  |
|-------------------------------------|-----------------------|---------------------------------|--|--|
| 16 Oct 2009<br>For 5 days<br>(TMS)  | Hackney, North London | 15                              | Boil water advice due to event associated with a private mains system. | <p>The Inspectorate classified this event as significant.</p> <p><b>Thames Water action:</b></p> <ul style="list-style-type: none"> <li>• Sampled affected area.</li> <li>• Installed a non-return valve to protect mains network.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• Undertake an adequate investigation in response to microbiological contraventions.</li> <li>• Update its risk assessment for this particular supply system to reflect the findings of this event.</li> <li>• Company commended for its ongoing liaison with property owner.</li> </ul> |
| 19 Oct 2009<br>For 3 hours<br>(SRN) | Burham works, Kent    | 44,150                          | Loss of disinfection due to plant failure.                             | <p>The Inspectorate classified this event as significant.</p> <p><b>Southern Water action:</b></p> <ul style="list-style-type: none"> <li>• Repaired faulty equipment.</li> <li>• Shut down treatment works.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• Recommended the company update its disinfection policy to include the method outlining how the disinfection standard is derived. This should also define the means by which the company carries out monitoring to show that the company is meeting its own policy.</li> </ul>                                |

| Date and duration                   | Area  | Estimate of population affected | Nature and cause of the event                      | Main actions and findings from the Inspectorate investigation   |
|-------------------------------------|---|---------------------------------|--|---|
| 19 Oct 2009<br>For 1 day<br>(VSE)   | Rakeshole works<br>supplying parts<br>of south east<br>Kent | 33,059                          | Inadequate<br>disinfection.                        | <p>The Inspectorate classified this event as significant.</p> <p><b>Veolia Water Southeast action:</b></p> <ul style="list-style-type: none"> <li>• Flushed mains.</li> <li>• Repaired faulty equipment.</li> <li>• Review of procedures.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• Improvements needed to automated control system.</li> <li>• Critical that operations staff did not initially identify problem.</li> </ul>  |
| 30 Oct 2009<br>For 24 hours<br>(UU) | Ulpha works<br>supplying parts<br>of south west<br>Cumbria  | 72,466                          | <i>Cryptosporidium</i><br>due to plant<br>failure. | <p>The Inspectorate classified this event as significant.</p> <p><b>United Utilities Water action:</b></p> <ul style="list-style-type: none"> <li>• Repaired faulty equipment.</li> <li>• Company have installed an additional alarm on the Dissolved Organic Carbon monitor.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• Inadequate treatment process – clarification.</li> <li>• Fourth event involving similar circumstances at Ulpha works during 2009.</li> <li>• Critical that normal process control arrangements appear to have been compromised.</li> <li>• Critical that this particular problem took so long to be identified.</li> <li>• Company to review emergency shutdown parameters.</li> </ul> |

| Date and duration                  | Area                               | Estimate of population affected | Nature and cause of the event  | Main actions and findings from the Inspectorate investigation  |
|------------------------------------|------------------------------------|---------------------------------|--|--|
| 30 Oct 2009<br>For 1 day<br>(ESK)  | Tilbury and Grays<br>area of Essex | 16,867                          | Discolouration caused by flow reversal causing disturbance of trunk mains deposits following plant start up. | <p>The Inspectorate classified this event as significant.</p> <p><b>Essex and Suffolk Water action:</b></p> <ul style="list-style-type: none"> <li>• Flushed mains.</li> <li>• Retrained staff.</li> <li>• Reviewed procedures.</li> <li>• In addition to the above the company is considering the installation of a manganese removal process at Linford Treatment works and, subject to the outcome of an inspection, a programme of work to clean the 15" trunk main may be undertaken.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• The site specific valve operating procedure was inadequate.</li> <li>• An inadequate risk assessment was carried out.</li> <li>• Inadequate training of staff in the operation to start up the works.</li> </ul> |
| 03 Nov 2009<br>For 4 days<br>(TMS) | Binsey,<br>Oxfordshire             | 47,000                          | Aeration due to planned work.  | <p>The Inspectorate classified this event as significant.</p> <p><b>Thames Water action:</b></p> <ul style="list-style-type: none"> <li>• Flushed mains.</li> <li>• Provided an alternative supply by tanker/bowser.</li> <li>• Retrained staff.</li> <li>• Review of procedures.</li> <li>• Sampled affected area.</li> <li>• Investigation into remedial actions for the crandallite deposits ongoing.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• Supplied unwholesome water in breach of regulations.</li> <li>• Inadequate procedures.</li> <li>• Company did not have adequate procedures for addressing the increased turbidity caused by crandallite.</li> </ul>  |

| Date and duration                    | Area                                   | Estimate of population affected | Nature and cause of the event   | Main actions and findings from the Inspectorate investigation  |
|--------------------------------------|--|---------------------------------|---|--|
| 04 Nov 2009<br>For 24 hours<br>(ANG) | Bletchley<br>Central, Milton<br>Keynes | 13                              | Petrol taste or odour due to possible disturbance of coal tar mains lining. | <p>The Inspectorate classified this event as significant.</p> <p><b>Anglian Water action:</b></p> <ul style="list-style-type: none"> <li>• Flushed mains.</li> <li>• Provided bottled water on request.</li> <li>• Sampled affected area.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• No recommendations made.</li> <li>• Suggested the company consider undertaking further investigations, such as coupon sampling, to ensure any coal tar lined pipes in the area are not likely to create an ongoing water quality problem.</li> </ul>  |
| 09 Nov 2009<br>For 48 hours<br>(NNE) | Alnwick,<br>Northumberland             | 11,750                          | Brown discolouration due to burst main.                                     | <p>The Inspectorate classified this event as significant.</p> <p><b>Northumbrian Water action:</b></p> <ul style="list-style-type: none"> <li>• Increased chlorine residuals at treatment works.</li> <li>• Increased chlorine residuals in the distribution system.</li> <li>• Issued a boil water notice.</li> <li>• Provided bottled water on request.</li> <li>• Sampled affected area.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• Recommended that the company puts in place procedures to ensure that the Health Protection Agency is consulted prior to issuing protective advice in matters of potential health significance.</li> </ul> |

| Date and duration                  | Area  | Estimate of population affected | Nature and cause of the event   | Main actions and findings from the Inspectorate investigation   |
|------------------------------------|---|---------------------------------|---|---|
| 12 Nov 2009<br>For 6 days<br>(DWR) | Penyffodd, near<br>Prestatyn                | 908                             | Boil notice issued due to microbiological contamination following a burst water main. | <p>The Inspectorate classified this event as significant.</p> <p><b>Dŵr Cymru Welsh Water action:</b></p> <ul style="list-style-type: none"> <li>• Review of procedures.</li> <li>• Provided bottled water on request.</li> <li>• Sampled affected area.</li> <li>• Increased chlorine residuals in the distribution system.</li> <li>• Issued a boil water notice.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• The Inspectorate concluded that the company has since taken action to address issues highlighted by this event.</li> </ul> |
| 13 Nov 2009<br>For 2 hours<br>(UU) | Worsthorne works supplying the Burnley area | 130,000                         | Iron due to plant failure.  | <p>The Inspectorate classified this event as significant.</p> <p><b>United Utilities Water action:</b></p> <ul style="list-style-type: none"> <li>• Repaired faulty equipment.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• Inadequate treatment process – dosing.</li> <li>• Recommended that the company reviews its Regulation 28(4) risk assessment for this site.</li> </ul>   |

| Date and duration                    | Area  | Estimate of population affected | Nature and cause of the event                  | Main actions and findings from the Inspectorate investigation  |
|--------------------------------------|---|---------------------------------|--|--|
| 17 Nov 2009<br>For 24 hours<br>(BRL) | Purton works, supplying Littleton-Upon-Severn, near Bristol | 403,000                         | Treatment failure and <i>Cryptosporidium</i> . | <p>The Inspectorate classified this event as significant.</p> <p><b>Bristol Water action:</b></p> <ul style="list-style-type: none"> <li>• Repaired faulty equipment.</li> <li>• Reduced flow.</li> <li>• Investigated moving flow meters.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• As the cause of the dosing failure was found to be a dosing pump which failed, a suggestion was made that dosing arrangements are reviewed and the possibility of a duty standby arrangement with an automatic change over is investigated to make the process more robust.</li> <li>• The company have reviewed and updated their procedures for restarting the clarifiers, to reduce the impact of floc carry over on the filter performance. Until the protocol is in place all shift controllers should be made aware of the possible impacts of restarting the clarifiers.</li> <li>• A suggestion was made that the company ensures all relevant stakeholders are notified.</li> </ul> |

| Date and duration                  | Area  | Estimate of population affected | Nature and cause of the event                                 | Main actions and findings from the Inspectorate investigation  |
|------------------------------------|---|---------------------------------|---|--|
| 19 Nov 2009<br>For 5 days<br>(UU)  | Large sections of Cumbria   | 125                             | Severe flooding due to exceptionally heavy rainfall.          | <p>The Inspectorate classified this event as significant.</p> <p><b>United Utilities Water action:</b></p> <ul style="list-style-type: none"> <li>• Repaired main.</li> <li>• Rezoned area (brought in water from different source).</li> <li>• Sampled affected area.</li> <li>• Shut down treatment works. Provided an alternative supply by tanker/bowser.</li> <li>• The company liaised with local stakeholders and the local resilience forum throughout. A strategic flushing programme was agreed with the Environment Agency for discharge of water with elevated turbidity from the Thirlmere aqueduct.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• The company implemented emergency planning procedures and there was minimal impact on consumers with regard to water quality. The scale of the Cumbria flooding attracted significant local and national media interest.</li> </ul> |
| 22 Nov 2009<br>For 3 days<br>(WSX) | Upton Scudamore works supplying the areas between Warminster and Bath | 122,500                         | <i>Cryptosporidium</i> levels due to raw water deterioration. | <p>The Inspectorate classified this event as significant.</p> <p><b>Wessex Water action:</b></p> <ul style="list-style-type: none"> <li>• Sampled affected area.</li> <li>• Investigated the raw water sources.</li> <li>• Removed raw source water from supply.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• Improved monitoring for <i>Cryptosporidium</i> oocysts in response to raw water monitoring information ensured the event was identified and responded to quickly.</li> <li>• Good communication took place between the company and the local Health Protection Team.</li> </ul>  |

| Date and duration                    | Area   | Estimate of population affected | Nature and cause of the event              | Main actions and findings from the Inspectorate investigation   |
|--------------------------------------|--|---------------------------------|--|---|
| 25 Nov 2009<br>For 24 hours<br>(DWR) | Preseli works supplying North Pembrokeshire including the towns of Fishguard and Newport | 19,000                          | Higher than usual pH due to plant failure. | <p>The Inspectorate classified this event as significant.</p> <p><b>Dŵr Cymru Welsh Water action:</b></p> <ul style="list-style-type: none"> <li>• Repaired faulty equipment.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• Inspectorate minded to recommend the company review the process of alarm response from the Control Centre to ensure a more timely response, but action has been taken to amend the procedures to ensure that managers are informed when high level alarms are being triggered to validate and authorise any decision to delay a response to that alarm.</li> <li>• Inspectorate minded to recommend the company review and amend their procedures for overriding emergency shutdown systems, however, since the time of event the company have carried out an investigation surrounding the issues of this event and have now amended the procedures regarding authorisation of overrides and recording of the time at which the overrides are activated.</li> </ul> |
| 26 Nov 2009<br>For 2 days<br>(SEW)   | Heathfield, East Sussex  | 5,000                           | Brown discolouration due to planned work.  | <p>The Inspectorate classified this event as significant.</p> <p><b>South East Water action:</b></p> <ul style="list-style-type: none"> <li>• Flushed mains.</li> <li>• Repaired main.</li> <li>• Sampled affected area.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• Company should work with third party contractor to ensure that essential equipment such as large volume pumps, are available promptly as part of contingency planning.</li> </ul>   |

| Date and duration                   | Area                   | Estimate of population affected | Nature and cause of the event               | Main actions and findings from the Inspectorate investigation   |
|-------------------------------------|------------------------|---------------------------------|---|---|
| 27 Nov 2009<br>For 1 day<br>(PWN)   | Media City,<br>Salford | Construction site               | Pesticide (triforine) detected.             | <p>The Inspectorate classified this event as significant.</p> <p><b>Peel Water Networks action:</b></p> <ul style="list-style-type: none"> <li>• Sampled affected area.</li> <li>• Joint investigation with United Utilities.</li> <li>• Triplicate analysis to validate any future detections.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• Audit of Mountain Heath found no validated method for this pesticide casting doubt on validity of result.</li> <li>• Further sampling required to be taken into account during company's risk assessment for triforine.</li> </ul>   |
| 27 Nov 2009<br>For 20 days<br>(YKS) | Durkar Area            | 90                              | Petrol taste/odour in 36 business premises. | <p>The Inspectorate classified this event as significant.</p> <p><b>Yorkshire Water action:</b></p> <ul style="list-style-type: none"> <li>• Flushed mains.</li> <li>• Sampled affected area.</li> <li>• Issued a do not drink notice.</li> <li>• Provided bottled water on request.</li> <li>• Rezoned area (brought in water from different source).</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• Critical that the company records were not accurate and the direction of water flow was not known as they had not yet been updated with the new development and the direction of water flow was not known – company to update records.</li> <li>• Critical that although hydrocarbon odour was detected on sampling, no analysis was carried out on that day, company are reviewing escalation of such situations in future.</li> </ul> |

| Date and duration                  | Area                       | Estimate of population affected | Nature and cause of the event  | Main actions and findings from the Inspectorate investigation   |
|------------------------------------|----------------------------|---------------------------------|--------------------------------|---|
| 01 Dec 2009<br>For 1 day<br>(TMS)  | Ogbourne works             | 28,000                          | Microbiological contamination. | <p>The Inspectorate classified this event as significant.</p> <p><b>Thames Water action:</b></p> <ul style="list-style-type: none"> <li>• Shut down treatment works.</li> <li>• Carried out enhanced monitoring on return to service.</li> <li>• Thorough treatment investigation carried out and no issues identified.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• No evidence found of contamination or treatment issue.</li> <li>• No further microbiological detections during follow-up investigation or routine sampling since the event.</li> </ul> |
| 03 Dec 2009<br>For 2 days<br>(NNE) | Brunton Park,<br>Newcastle | 4,525                           | Brown discolouration.          | <p>The Inspectorate classified this event as significant.</p> <p><b>Northumbrian Water action:</b></p> <ul style="list-style-type: none"> <li>• Sampled affected area.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• Procedures for sampling an illness complaint and after mains repair were not followed.</li> <li>• Company have briefed Network Operations about correct procedures.</li> </ul>  |

| Date and duration                  | Area                              | Estimate of population affected | Nature and cause of the event           | Main actions and findings from the Inspectorate investigation  |
|------------------------------------|-----------------------------------|---------------------------------|---|--|
| 03 Dec 2009<br>For 6 days<br>(DWR) | Kinmel Bay,<br>Conwy (Wales only) | 4,573                           | Coliforms following a burst main.       | <p>The Inspectorate classified this event as significant.</p> <p><b>Dŵr Cymru Welsh Water action:</b></p> <ul style="list-style-type: none"> <li>• Repaired faulty equipment.</li> <li>• Sampled affected area.</li> <li>• Flushed mains.</li> <li>• Repaired main.</li> <li>• Increased chlorine residuals in the distribution system.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• Recommended that the company takes action to ensure that an assessment of the impact of flushing is conducted prior to its commencement and that past events are used to identify appropriate flushing velocities.</li> </ul> |
| 06 Dec 2009<br>For 2 days<br>(NNE) | Bedlington                        | 49,478                          | Brown discolouration due to burst main. | <p>The Inspectorate classified this event as significant.</p> <p><b>Northumbrian Water action:</b></p> <ul style="list-style-type: none"> <li>• Sampled affected area.</li> <li>• Repaired main.</li> <li>• Provided bottled water on request.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• Satisfied with response.</li> </ul>  |

| Date and duration                  | Area   | Estimate of population affected | Nature and cause of the event             | Main actions and findings from the Inspectorate investigation  |
|------------------------------------|--|---------------------------------|---|--|
| 13 Dec 2009<br>For 1 day<br>(SVT)  | Melbourne works supplying the majority of Leicestershire and parts of Warwickshire | 950,000                         | <i>Cryptosporidium</i> .                  | <p>The Inspectorate classified this event as significant.</p> <p><b>Severn Trent Water action:</b></p> <ul style="list-style-type: none"> <li>• On receipt of an atypical positive <i>Cryptosporidium</i> result from a previous sample at Melbourne WTW the company fast tracked remaining samples.</li> <li>• Thorough site and process investigation undertaken which identified the body of a rabbit blocking a pipe from one of the wastewater recovery tanks.</li> <li>• Recovered <i>Cryptosporidium</i> oocyst sent for typing.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• DWI concluded that this event was not trivial, however, due to the specific combination of circumstances during the course of this event it was deemed unlikely to recur.</li> <li>• No evidence of risk to public health.</li> </ul> |
| 15 Dec 2009<br>For 5 days<br>(SRN) | Romsey, Hampshire  | 17,500                          | Brown discolouration due to planned work. | <p>The Inspectorate classified this event as significant.</p> <p><b>Southern Water action:</b></p> <ul style="list-style-type: none"> <li>• Sampled affected area.</li> <li>• Provided bottled water on request.</li> <li>• Flushed mains.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• Recommended that network operators use (and can demonstrate application of) informed technical judgement and guidance via robust procedures to ensure that actions taken to prevent discolouration are effective.</li> <li>• Recommended that the company takes a more proactive and informed approach to planned work and rezoning.</li> <li>• Recommended that the company reviews and updates its risk assessments in light of the hazards and risks identified by this event.</li> </ul>                                       |

| Date and duration                    | Area   | Estimate of population affected | Nature and cause of the event                           | Main actions and findings from the Inspectorate investigation   |
|--------------------------------------|--|---------------------------------|---|---|
| 17 Dec 2009<br>For 24 hours<br>(SRN) | Areas of Hythe, Dibden Purlieu, Blackfield, Fawley | 59,081                          | Brown discolouration due to third party damage to main. | <p>The Inspectorate classified this event as significant.</p> <p><b>Southern Water action:</b></p> <ul style="list-style-type: none"> <li>• Sampled affected area.</li> <li>• Repaired main.</li> <li>• Review of procedures.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• Delay in company notification to the Inspectorate arising from issues at company call centre.</li> </ul> |
| 17 Dec 2009<br>For 10 days<br>(ANG)  | Little Dunham, Norfolk                             | 680                             | Iron, turbidity due to back siphonage.                  | <p>The Inspectorate classified this event as significant.</p> <ul style="list-style-type: none"> <li>• Investigation ongoing.</li> </ul>  |
| 18 Dec 2009<br>For 2 hours<br>(YKS)  | South West Bradford                                | 12,500                          | Loss of supplies/poor pressure due to burst main.       | <p>The Inspectorate classified this event as significant.</p> <p><b>Yorkshire Water action:</b></p> <ul style="list-style-type: none"> <li>• Rezoned area/flushed main.</li> <li>• Offered alternative supplies.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• Satisfied with response.</li> </ul>   |

| Date and duration                   | Area                                       | Estimate of population affected | Nature and cause of the event           | Main actions and findings from the Inspectorate investigation  |
|-------------------------------------|--|---------------------------------|---|--|
| 23 Dec 2009<br>For 31 days<br>(DWR) | Hirwaun works supplying Rhondda Cynon Taff | 12,195                          | Iron breakthrough due to plant failure. | <p>The Inspectorate classified this event as significant.</p> <p><b>Dŵr Cymru Welsh Water action:</b></p> <ul style="list-style-type: none"> <li>• Replaced faulty equipment.</li> <li>• Sampled affected area.</li> <li>• Review of procedures.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• Inadequate treatment process – clarification.</li> <li>• Inadequate treatment process – dosing.</li> <li>• Inadequate treatment process – disinfection.</li> <li>• Inadequate treatment process – filtration.</li> <li>• Recommended the company review and update their Regulation 27 risk assessment report, where appropriate, to take into account the risks to the treatment process associated with adverse weather conditions.</li> <li>• Recommended the company fully investigates the cause of the turbidity spikes and considers short, medium and long term measures to prevent their continued occurrence.</li> </ul> |

| Date and duration                  | Area  | Estimate of population affected | Nature and cause of the event                     | Main actions and findings from the Inspectorate investigation   |
|------------------------------------|---|---------------------------------|---|---|
| 25 Dec 2009<br>For 5 days<br>(DWR) | Holywell, Penyffordd, Greenfield, Milwr, Gwespyr, Mostyn, Carmel, Whitford, Llanasa and Trelogan. | 15,618                          | Brown discolouration due to burst main.           | <p>The Inspectorate classified this event as significant.</p> <p><b>Dŵr Cymru Welsh Water action:</b></p> <ul style="list-style-type: none"> <li>• Sampled affected area.</li> <li>• Repaired main.</li> <li>• Provided bottled water on request.</li> <li>• Flushed mains.</li> <li>• The company is planning to replace the service reservoir soon with one which has two compartments which will facilitate inspections and cleaning.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• Satisfactory resolution of the event and no further action required.</li> </ul> |
| 29 Dec 2009<br>For 2 days<br>(UU)  | Blackpool and Fylde areas   | 30,000                          | Loss of supplies/poor pressure due to burst main. | <p>The Inspectorate classified this event as significant.</p> <p><b>United Utilities Water action:</b></p> <ul style="list-style-type: none"> <li>• Rezoned area.</li> <li>• Flushed main.</li> <li>• Offered alternative supplies.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• Satisfied with response.</li> </ul>  |

## Events outstanding from 2008

| Date and duration                   | Area   | Estimate of population affected | Nature and cause of the event                     | Main actions and findings from the Inspectorate investigation   |
|-------------------------------------|--|---------------------------------|---|---|
| 20 June 2008<br>For 3 days<br>(SWT) | South Dartmoor and the eastern outskirts of Plymouth | 18,000                          | Boil notice due to microbiological contamination. | <p><b>South West Water action:</b></p> <ul style="list-style-type: none"> <li>• Flushed mains.</li> <li>• Issued a boil water notice.</li> <li>• Sampled affected area.</li> <li>• Review of procedures.</li> <li>• New instructions issued to staff.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• Inadequate procedures.</li> <li>• Supplied unwholesome water in breach of regulations.</li> <li>• Inadequate training of staff.</li> </ul> |
| 25 Oct 2008<br>For 1 day<br>(NNE)   | Lanchester and Burn Hope area of Sunderland          | 1,000                           | Discolouration due to third party damage of main. | <p><b>Northumbrian Water actions:</b></p> <ul style="list-style-type: none"> <li>• Sampled affected area.</li> <li>• Repaired main.</li> <li>• Flushed mains.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• Critical of extent of sampling, company must ensure adequate samples to ensure water meets Regulations.</li> <li>• Critical that insufficient information supplied to Inspectorate to allow a full investigation.</li> </ul>       |

| Date and duration                 | Area   | Estimate of population affected | Nature and cause of the event      | Main actions and findings from the Inspectorate investigation  |
|-----------------------------------|--|---------------------------------|------------------------------------|--|
| 31 Oct 2008<br>For 1 day<br>(UU)  | Hodder works to the Fylde                                | 5,000                           | Mains lining damage by contractors | <p><b>United Utilities Water actions:</b></p> <ul style="list-style-type: none"> <li>• Main was taken out of supply while company investigated cause of the event.</li> <li>• Newly lined section of 27" main suffered lining detachment failure.</li> <li>• Company has completed refurbishment of damaged sections using alternative lining techniques and returned main to supply.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• Liaised with the company on reinstatement process and ensured consumers were protected.</li> <li>• Event investigation ongoing; awaiting company detailed expert report on causes of lining failure.</li> </ul> |
| 05 Nov 2008<br>For 1 day<br>(SRN) | Matts Hill works supplying parts of Mid Kent (see below) | 133,000                         | Turbidity in raw water.            | <p><b>Southern Water action:</b></p> <ul style="list-style-type: none"> <li>• Sampled affected area.</li> <li>• Review of procedures.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• Inadequate procedures.</li> <li>• Inadequate treatment process – filtration.</li> <li>• Inadequate communication caused delay in response.</li> <li>• Supplied unwholesome water in breach of regulations.</li> <li>• The company pleaded guilty to three offences on 17 May 2010 (see <i>Drinking water quality events</i> section)</li> </ul>   |
| 01 Dec 2008<br>For 1 day<br>(SRN) | Matts Hill works supplying parts of Mid Kent             | 133,000                         | <i>Cryptosporidium.</i>            | <p><b>Southern Water action:</b></p> <ul style="list-style-type: none"> <li>• Shut down treatment works.</li> <li>• Sampled affected area.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• Satisfied with the company response</li> </ul>   |

| Date and duration                    | Area  | Estimate of population affected | Nature and cause of the event          | Main actions and findings from the Inspectorate investigation  |
|--------------------------------------|---|---------------------------------|--|--|
| 06 Dec 2008<br>For 48 hours<br>(YKS) | Altofts area of Wakefield, West Yorkshire     | 6,680                           | Discolouration following planned work. | <p><b>Yorkshire Water actions:</b></p> <ul style="list-style-type: none"> <li>• Provided bottled water on request.</li> <li>• Sampled affected area.</li> <li>• Flushed mains.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• Inadequate risk assessment.</li> <li>• Company must ensure bottled water supplies meet the Regulations.</li> </ul>   |
| 07 Dec 2008<br>For 1 day<br>(WSX)    | Easterton works, supplying Devizes, Wiltshire | 5,175                           | Turbidity due to plant failure.        | <p><b>Wessex Water action:</b></p> <ul style="list-style-type: none"> <li>• Flushed mains.</li> <li>• Provided bottled water on request.</li> <li>• Shut down treatment works.</li> <li>• Sampled affected area.</li> <li>• Rezoned area (brought in water from different source).</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• Inadequate treatment process – filtration.</li> <li>• Lack of maintenance of equipment.</li> </ul> |
| 18 Dec 2008<br>For 1 day<br>(NNE)    | Wideopen area of Newcastle                    | 40,000                          | Discolouration due to planned work     | <p><b>Northumbrian Water actions:</b></p> <ul style="list-style-type: none"> <li>• Sampled affected area.</li> <li>• Manually operated valves to try and minimise the spread and impact of the discoloured water.</li> </ul> <p><b>DWI comments and findings:</b></p> <ul style="list-style-type: none"> <li>• Inadequate procedures and risk assessment.</li> <li>• Inadequate contingency planning.</li> </ul>   |