

IAP Response

Ref B2.16.WSH.CE.A1

Network water quality – new legal obligations

1 April 2019

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1. Cost efficiency challenge

We have carefully reviewed Ofwat's feedback on our 'Improving acceptability of water' cost adjustment claim. In the IAP, Ofwat assessed our proposed expenditure using its taste, odour and colour enhancement feeder model. We do not believe it appropriate to include expenditure required to deliver outputs to meet legally binding Drinking Water Inspectorate (DWI) Notices in that enhancement feeder model.

In response to the IAP and to clarify the driver for this network water quality programme we present a new investment case setting out how the expenditure is linked to DWI Notices.

This investment programme is now reported in the data tables as 'Network Water quality – New Legal Obligations' a new free form line in the wholesale water enhancement expenditure (WS2 and WS2a) Business Plan tables.

2. Drinking Water Inspectorate notices

2.1. The investment programme

The AMP7 investment programme may be summarised as follows:

DWI Notice	Issue Date	Milestone Status	Water Quality Zone	£m
DWR 3510	15/02/2016	1	B04 Bangor Caernarfon	4.4
DWR 3526	15/02/2016	1	B14 Lleyr Peninsula	0.7
DWR 3529	15/02/2016	1	D12 Aberystwyth	2.0
DWR 3512	15/02/2016	1	G15 Sketty Gower	1.0
DWR 3516	15/02/2016	1	G19 Port Talbot	15.1
DWR 3517	15/02/2016	1	G25 Bridgend Porthcawl	4.3
DWR 3518	15/02/2016	1	G27 Bridgend Pencoed	7.3
DWR 3532	15/02/2016	1	G28 Bryngwyn	2.7
DWR 3520	15/02/2016	1	H12 Hereford South	0.3
DWR 3533	15/02/2016	1	H24 Llyswen	4.6
DWR 3536	15/02/2016	1	L21 Abergavenny Cwmtillery	4.4
DWR 3538	15/02/2016	1	L45 Rassau Sirhowy	11.4
DWR 3540	15/02/2016	1	L51 Newport Risca	1.0
DWR 3519	15/02/2016	1	N10 Merthyr Abercynon	20.6
DWR 3539	15/02/2016	1	N41 Rhymney Bargoed	3.7
DWR 3523	15/02/2016	1	N48 Cardiff Heath / Llanishen	4.2
DWR 3521	15/02/2016	1	N51 Cardiff Ely Radyr	3.0
				90.7

2.2. DWI notice – staged approach

For AMP7, 17 DWI notices have been received, each of which is a new legal obligation for the company – the 17 notices are set out in Appendix 1.

There are four milestone stages to the DWI notices that underpin the AMP7 Network Water Quality work plan:

Milestone 1 – Complete Zonal Study.

The DWI notice requires a detailed assessment of performance in the zone to understand the root causes of the water quality issues there. This stage of the process includes identifying options to address the water quality issue, conducting a cost and benefit analysis and selecting the proposed solution.

Milestone 2 – Agree Programme of work and performance improvement with DWI.

This stage requires a programme of work and performance target to be drawn up, based on the schemes resulting from Milestone 1. The programme of works and commitments for performance improvement are agreed at this stage with the DWI. The DWI will then confirm the agreed programme of works and associated benefit in the form of performance improvement. This programme defines the new legal obligation on the company.

Milestone 3 – Deliver the programme of works.

This is the delivery stage of the programme in the water resource zone.

Milestone 4 – Demonstrate the benefit.

Following completion of the programme of works, a 6 month settling-in period is allowed, followed by 12 months of data collection which is used to demonstrate the benefit of the programme. It is only upon satisfactory completion of this final stage that the DWI will confirm completion of the notice.

Illustration of how the DWI Notices will develop over time.

As can be seen from the above table, all of the AMP7 DWI notices are currently at Milestone 1. We will have completed all of the specification of programme of works and performance improvements by March 2020. We expect to receive DWI output and improvement service letters by 31 December 2019 for 11 of the DWI Notices, completing Milestone 2 in these cases.

As an example of the documents required for completion of Milestone 2, we have included an example from our AMP 6 programme for Notice DWR3534.

Set out in Appendix 2 are the following documents for Notice ref DWR3534:

- The Legal Notice under Regulation 29(4): The Water Supply (Water Quality) Regulations 2010
- Welsh Water's Milestone 2 Report to the DWI setting out the required delivery programme.

- The DWI letter confirming receipt of the Milestone 2 Report and confirmation of the outputs and improvement in service to customers required to satisfy the requirements of the Notice.

3. Approach to programme costing

For the 17 zones in our plan we have completed Milestone 1 (the zonal study). Until site investigations have been completed and the scope of the final programme of work is agreed with the DWI there is a small element of uncertainty remaining in the final cost. For this reason we are proposing a customer protection ODI (see section 4). However we have a high degree of confidence in our approach to costing the programme of works. The intervention costs have been built bottom up from individual schemes identified in each Zonal Study, and the preferred solution is selected using our cost benefit methodology. The cost benefit methodology converts the benefit derived from each scheme into a financial value, this value is then compared with the cost of the programme of work. A minimum £1 benefit from £1 spent is required for a scheme to be selected.

The unit costs used to cost the programme of works are derived from our unit cost data base (UCD), and a cost efficiency challenge is applied (see 3.6 PR19 Costs efficiency, benchmarking and recovery WSH). The UCD has captured and analysed Welsh Water's historic data from approximately 1,000 water network schemes and is independently benchmarked periodically to determine its accuracy.

In assessing the robustness and efficiency of the costs of mains replacement activity Ofwat select South West Water as a comparator:

"We select SWB as a comparator for mains replacement... On this evidence we consider that WSH has previously failed to invest in mains replacement consequent to asset deterioration and the proposed programme is driven WSH's need to catch up with the rest of the industry."

We reject the validity of choosing SWB as a comparator. While they do have similar geology, there are other reasons why we are different. In addition we do not accept the claim that we have failed to invest in mains replacement in the part. See Appendix 3 for further details.

4. Customer protection

We recognise that the outturn cost of individual schemes may vary once Milestone 2 is completed and the required physical outputs are specified by the DWI.

Whilst we do not believe that is likely to be significant at the programme level, we are changing our business plan to include a customer protection outcome delivery incentive (ODI) for the Water Network Water Quality – New Legal obligations enhancement expenditure programme. It is our intention to return in full to customers any allowed totex that remains unspent at the end of AMP7. (Full details of the measure are included in the revised Performance commitments definitions IAP response).

5. Wider benefits of Network Water Quality programme - Maerdy Porth case study

The Zonal Study in Maerdy recommended and agreed with the DWI the replacement of 3 trunk mains, the cleaning of 1 trunk main and the abandonment of another. The trunk mains are all located in the only main road through a narrow, congested and rocky valley, making like for like replacement very costly to carry out and prohibitively disruptive for customers.

Hydraulic design assessments were used to identify a new proposed route for the Maerdy trunk main, and to determine the appropriate size of main and network configuration.

Whilst replacing the Maerdy trunk main we piloted our Water Resilient Communities project in the surrounding Rhondda Fach area. The Rhondda Fach Water Resilient Pilot Project aims to maximise the benefit of our presence in one of Wales' most deprived communities – focussing key areas of our work on a comparatively small geographic area with the intention of leaving the legacy of a “water resilient community.”

The pilot project ran from January to December 2018 and set out to collaborate with our customers and community stakeholders in the Rhondda Fach area to:

- Identify previously difficult to reach customers who qualify for reduced bills in the form of social tariffs
- Increase the penetration of our community education work in the area
- Promote water efficiency and reduce per capita consumption including offering free home water consumption and leakage audits
- Reduce sewer blockages through raising customer awareness of the causes of blockages
- Identify customers in vulnerable circumstances to ensure that their needs are identified on our priority services register

Key results to date:

- Customers have saved over £120,000 by successfully applying for our HelpU social tariff, ensuring customers have more money to spend in their community or reducing their debt burden (and a significant increase in take-up compared to other areas over the same period)
- Over 2,000 children have attended one of our outreach lessons on water efficiency, capital projects, or Science Technology Engineering and Mathematics (STEM)
- Over 100 customers and stakeholders have contributed to over 50 workshops, meetings and focus groups
- Every school has been offered a Water Efficiency Audit on their premises to reduce water consumption and costs
- Pilots have started to provide free water efficiency audits and Project Cartref “tap and toilet” check in customers’ properties to reduce water consumption and costs

- During the course of our Apprenticeship Programme 19 applications have been received from those who reside in this area to become a Welsh Water Apprentice
- An innovative Facebook Live “event” was held in the Pop Factory Porth to engage with customers online and explain the work we’re doing in the area and what we’re trying to achieve. Over 4,500 have viewed the event.

Appendices

Appendix 1 – AMP7 DWI notices

Appendix 2 – DWI notice DWR 3534:

- The Legal Notice under Regulation 29(4): The Water Supply (Water Quality) Regulations 2010
- Welsh Water's Milestone 2 Report to the DWI setting out the required delivery programme.
- The DWI letter confirming receipt of the Milestone 2 Report and confirmation of the outputs and improvement in service to customers required to satisfy the requirements of the Notice.

Appendix 3 - Issues raised in Ofwat's IAP feedback



Appendix 1 - AMP7 DWI notices

THE WATER SUPPLY (WATER QUALITY) REGULATIONS 2010

NOTICE UNDER REGULATION 29(4)

DŴR CYMRU WELSH WATER: Z1005B04 Bangor / Caernarfon

Version Number: 1

Z1005B04 Bangor / Caernarfon : Supply System Y8001 North Eryri/Ynys Mon

Improvement Programme Database Reference number – DWR 3510

THE WELSH MINISTERS:

1. have received a report from Dŵr Cymru Welsh Water (the “**Company**”) dated 6 March 2015 (the “**Report**”) which states that there is or has been a significant risk of supplying water from the Bangor/Caernarfon zone that would constitute a potential danger to human health.
2. gives Notice that the Company is required, in order to mitigate the risk, in accordance with Regulation 29(4):

For risks associated with:

- Discolouration and associated customer acceptability due to the condition and operation of the network system

(a) to maintain the existing operational measures set out in the Report and as specified below:

- i. Regulatory sampling of water at Cwellyn and Mynydd Llandegai works and at customers' taps
- ii. Monitoring, tracking and reporting customer contacts
- iii. Responding as required to any PCV failure or customer contact in line with company procedures. Carry out an investigation to determine the root cause of the failure and identify any remedial measures required to prevent a recurrence
- iv. Liaison with local and public health authorities as appropriate
- v. Review risk assessments for customer contacts and update regulation 29 report

(b) to review, revise and/or make operational such measures as are specified below, by the date specified below:

Short term measures

- vi. Complete Distribution zonal study (DZS) including formulating the methodology for mitigating discolouration risk in this zone **by 30 June 2016**
- vii. Ensure optimisation of Cwellyn and Mynydd Llandegai works with 95 percentile less than 20% PCV **Ongoing**

Medium term measures

- viii. Confirmation of programme of work identified through the DZS following cost benefit for customer acceptability **by 31 December 2016**
- ix. Confirmation of success criteria for demonstration of benefit in delivering the proposed programme of work including commencement dates and timescale for demonstration of benefit **by 31 December 2016**

Long term measures

- x. Delivery of programme of work as identified through DZS in Step (b) viii above **by 31 March 2019**

(c) to audit whether the measures have been effective by such means as specified below:

- xi. Define a strategy for auditing the effectiveness of the above measures to include the following **by 29 February 2016**;
 - Monitoring of iron and manganese levels in samples taken from Cwellyn and Mynydd Llandegai works
 - Implementation of enhanced sampling programme throughout the zone for Fe and Mn to 104 per year
 - Review of customer contacts on quarterly basis to measure and monitor change and if necessary escalate remediation as appropriate
 - Drinking Water Safety Plan and regulation 29 reports updated in line with any new information arising
 - Review programme of work and delivery timescales to address priority areas of customer acceptability following updated information
 - Validate benefits delivered against benefits criteria set
 - Technical reports for preferred solutions where choices are available
 - Commissioning, completion and handover certificates for all work carried out in line with the programme as defined in step (b) viii
- xii. Implement the audit strategy outlined in (xi), keep under review, and resubmit when subject to change, until the revocation of this notice.

(d) NA

(e) to provide the following information in such time and manner as specified below to enable monitoring of progress:

- i. Provide a progress report annually by 31 January (to include progress against audit strategy in c) and at the following key milestones
 - Provision of the output from DZS as indicated in Step b(vi) (1 month after short term measure date) **by 31 July 2016**
 - Provision of the programme of remediation work arising from DZS and criteria for benefit setting as indicated in Step b (viii) (1 month after medium term measure date) **by 31 January 2017**
 - Delivery of remediation identified in Step b (x) (1 month after completion of last scheme) **by 30 April 2019**
 - Initial completion report **by 30 October 2020**
- ii. Review the risk assessment for Z1005B04 as required by Regulation 28(4) and subsequently submit a revised Regulation 29 report (in accordance with Regulation 29(1)) from time to time); and **by 31 July 2019**
- iii. Submit a satisfactory completion report **by 29 October 2021**.

Please be aware that breach by the Company of this Notice may result in an enforcement notice, breach of which may itself attract a penalty

This Notice may be amended or revoked by notice from the Welsh Ministers at any time.

Signed by authority of the Welsh Ministers,



Milo Purcell

Deputy Chief Inspector

DWI ref DWR 3510

15 February 2016

Assets Affected	
Asset name	Asset reference
Beddgelert SRV	R645061
Bryniau SRV	R645006
Cwellyn SRV	R645391
Deiniolen SRV	R645068
Ffreithwen SRV	R645022
Llanrug SRV	R645030
Pentir SRV	R645367
Rachub SRV	R645064
Rhosgadfan SRV	R645047
Ysbyty SRV	R645000
Cwellyn works	T603232, T603212, T603012
Mynydd Llandegai	T627422, T627432

THE WATER SUPPLY (WATER QUALITY) REGULATIONS 2010

NOTICE UNDER REGULATION 29(4)

DŴR CYMRU WELSH WATER: Z1034G15 Sketty / Gower

Version Number: 1

Z1034G15 Sketty / Gower : Supply System Y8021 Tywi

Improvement Programme Database Reference number – DWR 3512

THE WELSH MINISTERS:

1. have received a report from Dŵr Cymru Welsh Water (the “**Company**”) dated 6 March 2015 (the “**Report**”) which states that there is or has been a significant risk of supplying water from the Sketty / Gower zone that would constitute a potential danger to human health.
2. gives Notice that the Company is required, in order to mitigate the risk, in accordance with Regulation 29(4):

For risks associated with:

- Discolouration and associated customer acceptability due to the condition and operation of the network system

(a) to maintain the existing operational measures set out in the Report and as specified below:

- i. Regulatory sampling of water at Felindre works and at customers' taps
- ii. Monitoring, tracking and reporting customer contacts
- iii. Responding as required to any PCV failure or customer contact in line with company procedures. Carry out an investigation to determine the root cause of the failure and identify any remedial measures required to prevent a recurrence
- iv. Liaison with local and public health authorities as appropriate
- v. Review risk assessments for customer contacts and update regulation 29 report

(b) to review, revise and/or make operational such measures as are specified below, by the date specified below:

Short term measures

- vi. Complete Distribution zonal study (DZS) including formulating the methodology for mitigating discolouration risk in this zone **by 30 June 2016**
- vii. Ensure optimisation of Felindre works with 95 percentile less than 20% PCV **Ongoing**

Medium term measures

- viii. Confirmation of programme of work identified through the DZS following cost benefit for customer acceptability **by 31 December 2016**
- ix. Confirmation of success criteria for demonstration of benefit in delivering the proposed programme of work including commencement dates and timescale for demonstration of benefit **by 31 December 2016**

Long term measures

- x. Delivery of programme of work as identified through DZS in Step (b) viii above **by 31 March 2018**

(c) to audit whether the measures have been effective by such means as specified below:

- xi. Define a strategy for auditing the effectiveness of the above measures to include the following **by 29 February 2016**;
 - Monitoring of iron and manganese levels in samples taken from Felindre works
 - Implementation of enhanced sampling programme throughout the zone for Fe and Mn to 104 and 52 per year respectively
 - Review of customer contacts on quarterly basis to measure and monitor change and if necessary escalate remediation as appropriate
 - Drinking Water Safety Plan and regulation 29 reports updated in line with any new information arising
 - Review programme of work and delivery timescales to address priority areas of customer acceptability following updated information
 - Validate benefits delivered against benefits criteria set
 - Technical reports for preferred solutions where choices are available
 - Commissioning, completion and handover certificates for all work carried out in line with the programme as defined in step (b) viii
- xii. Implement the audit strategy outlined in (xi), keep under review, and resubmit when subject to change, until the revocation of this notice.

(d) NA

(e) to provide the following information in such time and manner as specified below to enable monitoring of progress:

- i. Provide a progress report annually by 31 January (to include progress against audit strategy in c) and at the following key milestones
 - Provision of the output from DZS as indicated in Step b(vi) (1 month after short term measure date) **by 31 July 2016**
 - Provision of the programme of remediation work arising from DZS and criteria for benefit setting as indicated in Step b (viii) (1 month after medium term measure date) **by 31 January 2017**
 - Delivery of remediation identified in Step b (x) (1 month after completion of last scheme) **by 30 April 2018**
 - Initial completion report **by 31 October 2019**
- ii. Review the risk assessment for Z1005B04 as required by Regulation 28(4) and subsequently submit a revised Regulation 29 report (in accordance with Regulation 29(1)) from time to time; and **by 31 July 2018**
- iii. Submit a satisfactory completion report **by 29 October 2020**.

Please be aware that breach by the Company of this Notice may result in an enforcement notice, breach of which may itself attract a penalty

This Notice may be amended or revoked by notice from the Welsh Ministers at any time.

Signed by authority of the Welsh Ministers,



Milo Purcell

Deputy Chief Inspector

DWI ref DWR 3512

15 February 2016

Assets Affected	
Asset name	Asset reference
Cockett SRV	R77004
Cockett Tower SRV	R77005
Clyne SRV	R77035
Newton SRV	R77225
Cefn Bryn SRV	R79123
Rhossili SRV	R77316
Felindre works	T77100

THE WATER SUPPLY (WATER QUALITY) REGULATIONS 2010

NOTICE UNDER REGULATION 29(4)

DŴR CYMRU WELSH WATER: Z1040G19 Port Talbot

Version Number: 1

Z1040G19 Port Talbot : Supply System Y8201 Tywi area

Improvement Programme Database Reference number – DWR 3516

THE WELSH MINISTERS:

1. have received a report from Dŵr Cymru Welsh Water (the “**Company**”) dated 11 March 2015 (the “**Report**”) which states that there is or has been a significant risk of supplying water from the Port Talbot zone that would constitute a potential danger to human health.
2. gives Notice that the Company is required, in order to mitigate the risk, in accordance with Regulation 29(4):

For risks associated with:

- Discolouration and associated customer acceptability due to the condition and operation of the network system

(a) to maintain the existing operational measures set out in the Report and as specified below:

- i. Regulatory sampling of water at Felindre and Cray works and at customers' taps
- ii. Monitoring, tracking and reporting customer contacts
- iii. Responding as required to any PCV failure or customer contact in line with company procedures. Carry out an investigation to determine the root cause of the failure and identify any remedial measures required to prevent a recurrence
- iv. Liaison with local and public health authorities as appropriate
- v. Review risk assessments for customer contacts and update regulation 29 report

(b) to review, revise and/or make operational such measures as are specified below, by the date specified below:

Short term measures

- vi. Complete Distribution zonal study (DZS) including formulating the methodology for mitigating discolouration risk in this zone **by 30 June 2016**
- vii. Ensure optimisation of Felindre and Cray works with 95 percentile less than 20% PCV **Ongoing**

Medium term measures

- viii. Confirmation of programme of work identified through the DZS following cost benefit for customer acceptability **by 31 July 2018**
- ix. Confirmation of success criteria for demonstration of benefit in delivering the proposed programme of work including commencement dates and timescale for demonstration of benefit **by 31 July 2018**

Long term measures

- x. Delivery of programme of work as identified through DZS in Step (b) viii above **by 31 March 2025**

(c) to audit whether the measures have been effective by such means as specified below:

- xi. Define a strategy for auditing the effectiveness of the above measures to include the following **by 29 February 2016**;
 - Monitoring of iron and manganese levels in samples taken from Felindre and Cray works
 - Implementation of enhanced sampling programme throughout the zone for Fe and Mn to 36 per year
 - Review of customer contacts on quarterly basis to measure and monitor change and if necessary escalate remediation as appropriate
 - Drinking Water Safety Plan and regulation 29 reports updated in line with any new information arising
 - Review programme of work and delivery timescales to address priority areas of customer acceptability following updated information
 - Validate benefits delivered against benefits criteria set
 - Technical reports for preferred solutions where choices are available
 - Commissioning, completion and handover certificates for all work carried out in line with the programme as defined in step (b) viii
- xii. Implement the audit strategy outlined in (xi), keep under review, and resubmit when subject to change, until the revocation of this notice.

(d) NA

(e) to provide the following information in such time and manner as specified below to enable monitoring of progress:

- i. Provide a progress report annually by 31 January (to include progress against audit strategy in c) and at the following key milestones
 - Provision of the output from DZS as indicated in Step b(vi) (1 month after short term measure date) **by 31 July 2017**
 - Provision of the programme of remediation work arising from DZS and criteria for benefit setting as indicated in Step b (viii) (1 month after medium term measure date) **by 31 August 2018**
 - Delivery of remediation identified in Step b (x) (1 month after completion of last scheme) **by 30 April 2025**
 - Initial completion report **by 30 October 2026**
- ii. Review the risk assessment for Z1040G19 as required by Regulation 28(4) and subsequently submit a revised Regulation 29 report (in accordance with Regulation 29(1)) from time to time; and **by 31 July 2025**
- iii. Submit a satisfactory completion report **by 29 October 2027**.

Please be aware that breach by the Company of this Notice may result in an enforcement notice, breach of which may itself attract a penalty

This Notice may be amended or revoked by notice from the Welsh Ministers at any time.

Signed by authority of the Welsh Ministers,



Milo Purcell

Deputy Chief Inspector

DWI ref DWR 3516

15 February 2016

Assets Affected	
Asset name	Asset reference
Baglan SRV	R77006
Goytre SRV	R77172
Tycoch SRV	R77298
Felindre works	T77100
Cray works	T79086

THE WATER SUPPLY (WATER QUALITY) REGULATIONS 2010

NOTICE UNDER REGULATION 29(4)

DŴR CYMRU WELSH WATER: Z1041G25 Bridgend / Porthcawl

Version Number: 1

Z1041G25 Bridgend / Porthcawl : Supply System Y8201 Tywi area

Improvement Programme Database Reference number – DWR 3517

THE WELSH MINISTERS:

1. have received a report from Dŵr Cymru Welsh Water (the “**Company**”) dated 6 March 2015 (the “**Report**”) which states that there is or has been a significant risk of supplying water from the Bridgend / Porthcawl zone that would constitute a potential danger to human health.
2. gives Notice that the Company is required, in order to mitigate the risk, in accordance with Regulation 29(4):

For risks associated with:

- Discolouration and associated customer acceptability due to the condition and operation of the network system

(a) to maintain the existing operational measures set out in the Report and as specified below:

- i. Regulatory sampling of water at Felindre and Cray water treatment works and at customers' taps
- ii. Monitoring, tracking and reporting customer contacts
- iii. Responding as required to any PCV failure or customer contact in line with company procedures. Carry out an investigation to determine the root cause of the failure and identify any remedial measures required to prevent a recurrence
- iv. Liaison with local and public health authorities as appropriate
- v. Review risk assessments for customer contacts and update regulation 29 report

(b) to review, revise and/or make operational such measures as are specified below, by the date specified below:

Short term measures

- vi. Complete Distribution zonal study (DZS) including formulating the methodology for mitigating discolouration risk in this zone **by 30 June 2016**
- vii. Ensure optimisation of Felindre and Cray works with 95 percentile less than 20% PCV **Ongoing**

Medium term measures

- viii. Confirmation of programme of work identified through the DZS following cost benefit for customer acceptability **by 31 December 2016**
- ix. Confirmation of success criteria for demonstration of benefit in delivering the proposed programme of work including commencement dates and timescale for demonstration of benefit **by 31 December 2016**

Long term measures

- x. Delivery of programme of work as identified through DZS in Step (b) viii above **by 31 March 2020**

(c) to audit whether the measures have been effective by such means as specified below:

- xi. Define a strategy for auditing the effectiveness of the above measures to include the following **by 29 February 2016**;
 - Monitoring of iron and manganese levels in samples taken from Felindre and Cray works
 - Implementation of enhanced sampling programme throughout the zone for Fe and Mn to 104 and 76 per year respectively
 - Review of customer contacts on quarterly basis to measure and monitor change and if necessary escalate remediation as appropriate
 - Drinking Water Safety Plan and regulation 29 reports updated in line with any new information arising
 - Review programme of work and delivery timescales to address priority areas of customer acceptability following updated information
 - Validate benefits delivered against benefits criteria set
 - Technical reports for preferred solutions where choices are available
 - Commissioning, completion and handover certificates for all work carried out in line with the programme as defined in step (b) viii
- xii. Implement the audit strategy outlined in (xi), keep under review, and resubmit when subject to change, until the revocation of this notice.

(d) NA

(e) to provide the following information in such time and manner as specified below to enable monitoring of progress:

- i. Provide a progress report annually by 31 January (to include progress against audit strategy in c) and at the following key milestones
 - Provision of the output from DZS as indicated in Step b(vi) (1 month after short term measure date) **by 31 July 2016**
 - Provision of the programme of remediation work arising from DZS and criteria for benefit setting as indicated in Step b (viii) (1 month after medium term measure date) **by 31 January 2017**
 - Delivery of remediation identified in Step b (x) (1 month after completion of last scheme) **by 30 April 2020**
 - Initial completion report **by 29 October 2021**
- ii. Review the risk assessment for Z1041G25 as required by Regulation 28(4) and subsequently submit a revised Regulation 29 report (in accordance with Regulation 29(1)) from time to time; and **by 31 July 2020**
- iii. Submit a satisfactory completion report **by 28 October 2022**.

Please be aware that breach by the Company of this Notice may result in an enforcement notice, breach of which may itself attract a penalty

This Notice may be amended or revoked by notice from the Welsh Ministers at any time.

Signed by authority of the Welsh Ministers,



Milo Purcell

Deputy Chief Inspector

DWI ref DWR 3517

15 February 2016

Assets Affected	
Asset name	Asset reference
Birchgrove SRV	R77015
Court Colman SRV	R77064
Cefn Hirgoed SRV	R77062
Brackla SRV	R77012
Siggingstone SRV	R77978/R79055
Ty Coch SRV	R77299
Felindre	T77100
Cray	T79086

THE WATER SUPPLY (WATER QUALITY) REGULATIONS 2010

NOTICE UNDER REGULATION 29(4)

DŴR CYMRU WELSH WATER: Z1041G27 Pencoed / Bridgend Valleys

Version Number: 1

Z1041G27 Pencoed / Bridgend Valleys : Supply System Y8201 Tywi

Improvement Programme Database Reference number – DWR 3518

THE WELSH MINISTERS:

1. have received a report from Dŵr Cymru Welsh Water (the “**Company**”) dated 16 December 2015 (the “**Report**”) which states that there is or has been a significant risk of supplying water from the Pencoed / Bridgend Valleys zone that would constitute a potential danger to human health.
2. gives Notice that the Company is required, in order to mitigate the risk, in accordance with Regulation 29(4):

For risks associated with:

- Discolouration and associated customer acceptability due to the condition and operation of the network system

(a) to maintain the existing operational measures set out in the Report and as specified below:

- i. Regulatory sampling of water at Felindre and Cray works and at customers' taps
- ii. Monitoring, tracking and reporting customer contacts
- iii. Responding as required to any PCV failure or customer contact in line with company procedures. Carry out an investigation to determine the root cause of the failure and identify any remedial measures required to prevent a recurrence
- iv. Liaison with local and public health authorities as appropriate
- v. Review risk assessments for customer contacts and update regulation 29 report

(b) to review, revise and/or make operational such measures as are specified below, by the date specified below:

Short term measures

- vi. Complete Distribution zonal study (DZS) including formulating the methodology for mitigating discolouration risk in this zone **by 30 June 2016**
- vii. Ensure optimisation of Felindre and Cray works with 95 percentile less than 20% PCV **Ongoing**

Medium term measures

- viii. Confirmation of programme of work identified through the DZS following cost benefit for customer acceptability **by 31 December 2016**
- ix. Confirmation of success criteria for demonstration of benefit in delivering the proposed programme of work including commencement dates and timescale for demonstration of benefit **by 31 December 2016**

Long term measures

- x. Delivery of programme of work as identified through DZS in Step (b) viii above **by 31 March 2020**

(c) to audit whether the measures have been effective by such means as specified below:

- xi. Define a strategy for auditing the effectiveness of the above measures to include the following **by 29 February 2016**;
 - Monitoring of iron and manganese levels in samples taken from Felindre and Cray works
 - Implementation of enhanced sampling programme throughout the zone for Fe and Mn to 104 and 52 per year respectively
 - Review of customer contacts on quarterly basis to measure and monitor change and if necessary escalate remediation as appropriate
 - Drinking Water Safety Plan and regulation 29 reports updated in line with any new information arising
 - Review programme of work and delivery timescales to address priority areas of customer acceptability following updated information
 - Validate benefits delivered against benefits criteria set
 - Technical reports for preferred solutions where choices are available
 - Commissioning, completion and handover certificates for all work carried out in line with the programme as defined in step (b) viii
- xii. Implement the audit strategy outlined in (xi), keep under review, and resubmit when subject to change, until the revocation of this notice.

(d) NA

(e) to provide the following information in such time and manner as specified below to enable monitoring of progress:

- i. Provide a progress report annually by 31 January (to include progress against audit strategy in c) and at the following key milestones
 - Provision of the output from DZS as indicated in Step b(vi) (1 month after short term measure date) **by 31 July 2016**
 - Provision of the programme of remediation work arising from DZS and criteria for benefit setting as indicated in Step b (viii) (1 month after medium term measure date) **by 31 January 2017**
 - Delivery of remediation identified in Step b (x) (1 month after completion of last scheme) **by 30 April 2020**
 - Initial completion report **by 29 October 2021**
- ii. Review the risk assessment for Z1041G27 as required by Regulation 28(4) and subsequently submit a revised Regulation 29 report (in accordance with Regulation 29(1)) from time to time; and **by 31 July 2020**
- iii. Submit a satisfactory completion report **by 31 October 2022**.

Please be aware that breach by the Company of this Notice may result in an enforcement notice, breach of which may itself attract a penalty

This Notice may be amended or revoked by notice from the Welsh Ministers at any time.

Signed by authority of the Welsh Ministers,



Milo Purcell

Deputy Chief Inspector

DWI ref DWR 3518

15 February 2016

Assets Affected	
Asset name	Asset reference
Cefn Hirgoed SRV	R77062
New Forest SRV	R67287
Llangeinor SRV	R79093
Red Cow SRV	R77282
Pontycymmer SRV	R79083
Garw Nanthir (Blaengarw) SRV	R79084
Felindre works	T77100
Cray works	T79086

THE WATER SUPPLY (WATER QUALITY) REGULATIONS 2010

NOTICE UNDER REGULATION 29(4)

DŴR CYMRU WELSH WATER: Z1052N10 Merthyr / Abercynon

Version Number: 1

Z1052N10 Merthyr / Abercynon : Supply System Y8120 Pontsticill Low Level

Improvement Programme Database Reference number – DWR 3519

THE WELSH MINISTERS:

1. have received a report from Dŵr Cymru Welsh Water (the “**Company**”) dated 7 March 2015 (the “**Report**”) which states that there is or has been a significant risk of supplying water from the Merthyr / Abercynon zone that would constitute a potential danger to human health.
2. gives Notice that the Company is required, in order to mitigate the risk, in accordance with Regulation 29(4):

For risks associated with:

- Discolouration and associated customer acceptability due to the condition and operation of the network system

(a) to maintain the existing operational measures set out in the Report and as specified below:

- i. Regulatory sampling of water at Pontsticill, Llwynon and Cantref works and at customers' taps
- ii. Monitoring, tracking and reporting customer contacts
- iii. Responding as required to any PCV failure or customer contact in line with company procedures. Carry out an investigation to determine the root cause of the failure and identify any remedial measures required to prevent a recurrence
- iv. Liaison with local and public health authorities as appropriate
- v. Review risk assessments for customer contacts and update regulation 29 report

(b) to review, revise and/or make operational such measures as are specified below, by the date specified below:

Short term measures

- vi. Complete Distribution zonal study (DZS) including formulating the methodology for mitigating discolouration risk in this zone **by 30 June 2016**
- vii. Ensure optimisation of Pontsticill, Llwynon and Cantref works with 95 percentile less than 20% PCV **Ongoing**

Medium term measures

- viii. Confirmation of programme of work identified through the DZS following cost benefit for customer acceptability **by 31 December 2016**
- ix. Confirmation of success criteria for demonstration of benefit in delivering the proposed programme of work including commencement dates and timescale for demonstration of benefit **by 31 December 2016**

Long term measures

- x. Delivery of programme of work as identified through DZS in Step (b) viii above **by 31 March 2020**

(c) to audit whether the measures have been effective by such means as specified below:

- xi. Define a strategy for auditing the effectiveness of the above measures to include the following **by 29 February 2016**;
 - Monitoring of iron and manganese levels in samples taken from Pontsticill, Llwynon and Cantref works
 - Implementation of enhanced sampling programme throughout the zone for Fe and Mn to 104 and 52 per year respectively
 - Review of customer contacts on quarterly basis to measure and monitor change and if necessary escalate remediation as appropriate
 - Drinking Water Safety Plan and regulation 29 reports updated in line with any new information arising
 - Review programme of work and delivery timescales to address priority areas of customer acceptability following updated information
 - Validate benefits delivered against benefits criteria set
 - Technical reports for preferred solutions where choices are available
 - Commissioning, completion and handover certificates for all work carried out in line with the programme as defined in step (b) viii
- xii. Implement the audit strategy outlined in (xi), keep under review, and resubmit when subject to change, until the revocation of this notice.

(d) NA

(e) to provide the following information in such time and manner as specified below to enable monitoring of progress:

- i. Provide a progress report annually by 31 January (to include progress against audit strategy in c) and at the following key milestones
 - Provision of the output from DZS as indicated in Step b(vi) (1 month after short term measure date) **by 31 July 2016**
 - Provision of the programme of remediation work arising from DZS and criteria for benefit setting as indicated in Step b (viii) (1 month after medium term measure date) **by 31 January 2017**
 - Delivery of remediation identified in Step b (x) (1 month after completion of last scheme) **by 30 April 2020**
 - Initial completion report **by 29 October 2021**
- ii. Review the risk assessment for Z1052N10 as required by Regulation 28(4) and subsequently submit a revised Regulation 29 report (in accordance with Regulation 29(1)) from time to time; and **by 31 July 2020**
- iii. Submit a satisfactory completion report **by 31 October 2022**.

Please be aware that breach by the Company of this Notice may result in an enforcement notice, breach of which may itself attract a penalty

This Notice may be amended or revoked by notice from the Welsh Ministers at any time.

Signed by authority of the Welsh Ministers,



Milo Purcell

Deputy Chief Inspector

DWI ref DWR 3519

15 February 2016

Assets Affected	
Asset name	Asset reference
Abercynon No 1 SRV	R67313
Abercynon No 2 SRV	R301327
Pengarnddu New SRV	R301166
Pengarnddu SRV	R67291
Llwydcoed Combined SRV	R300271
Nantddu SRV	R300280
Penybryn SRV	R67292
Penrhiwceiber SRV	R67312
Pontsticill	T67034
Llwynon	T67149
Cantref	T67151

THE WATER SUPPLY (WATER QUALITY) REGULATIONS 2010

NOTICE UNDER REGULATION 29(4)

DŴR CYMRU WELSH WATER: Z1062H12 Hereford South

Version Number: 1

Z1062H12 Hereford South : Supply System Y8103 Hereford

Improvement Programme Database Reference number – DWR 3520

THE WELSH MINISTERS:

1. have received a report from Dŵr Cymru Welsh Water (the “**Company**”) dated 7 March 2015 (the “**Report**”) which states that there is or has been a significant risk of supplying water from the Hereford South zone that would constitute a potential danger to human health.
2. gives Notice that the Company is required, in order to mitigate the risk, in accordance with Regulation 29(4):

For risks associated with:

- Discolouration and associated customer acceptability due to the condition and operation of the network system

(a) to maintain the existing operational measures set out in the Report and as specified below:

- i. Regulatory sampling of water at Broomy Hill works and at customers' taps
- ii. Monitoring, tracking and reporting customer contacts
- iii. Responding as required to any PCV failure or customer contact in line with company procedures. Carry out an investigation to determine the root cause of the failure and identify any remedial measures required to prevent a recurrence
- iv. Liaison with local and public health authorities as appropriate
- v. Review risk assessments for customer contacts and update regulation 29 report

(b) to review, revise and/or make operational such measures as are specified below, by the date specified below:

Short term measures

- vi. Complete Distribution zonal study (DZS) including formulating the methodology for mitigating discolouration risk in this zone **by 30 June 2016**
- vii. Ensure optimisation of Broomy Hill works with 95 percentile less than 20% PCV **Ongoing**

Medium term measures

- viii. Confirmation of programme of work identified through the DZS following cost benefit for customer acceptability **by 31 July 2018**
- ix. Confirmation of success criteria for demonstration of benefit in delivering the proposed programme of work including commencement dates and timescale for demonstration of benefit **by 31 July 2018**

Long term measures

- x. Delivery of programme of work as identified through DZS in Step (b) viii above **by 31 March 2025**

(c) to audit whether the measures have been effective by such means as specified below:

- xi. Define a strategy for auditing the effectiveness of the above measures to include the following **by 29 February 2016**;
 - Monitoring of iron and manganese levels in samples taken from Broomy Hill works
 - Implementation of enhanced sampling programme throughout the zone for Fe and Mn to 76 and 36 per year respectively
 - Review of customer contacts on quarterly basis to measure and monitor change and if necessary escalate remediation as appropriate
 - Drinking Water Safety Plan and regulation 29 reports updated in line with any new information arising
 - Review programme of work and delivery timescales to address priority areas of customer acceptability following updated information
 - Validate benefits delivered against benefits criteria set
 - Technical reports for preferred solutions where choices are available
 - Commissioning, completion and handover certificates for all work carried out in line with the programme as defined in step (b) viii
- xii. Implement the audit strategy outlined in (xi), keep under review, and resubmit when subject to change, until the revocation of this notice.

(d) NA

(e) to provide the following information in such time and manner as specified below to enable monitoring of progress:

- i. Provide a progress report annually by 31 January (to include progress against audit strategy in c) and at the following key milestones
 - Provision of the output from DZS as indicated in Step b(vi) (1 month after short term measure date) **by 31 July 2016**
 - Provision of the programme of remediation work arising from DZS and criteria for benefit setting as indicated in Step b (viii) (1 month after medium term measure date) **by 31 August 2018**
 - Delivery of remediation identified in Step b (x) (1 month after completion of last scheme) **by 30 April 2025**
 - Initial completion report **by 30 October 2026**
- ii. Review the risk assessment for Z1062H12 as required by Regulation 28(4) and subsequently submit a revised Regulation 29 report (in accordance with Regulation 29(1)) from time to time); and **by 31 July 2025**
- iii. Submit a satisfactory completion report **by 29 October 2027**.

Please be aware that breach by the Company of this Notice may result in an enforcement notice, breach of which may itself attract a penalty

This Notice may be amended or revoked by notice from the Welsh Ministers at any time.

Signed by authority of the Welsh Ministers,



Milo Purcell

Deputy Chief Inspector

DWI ref DWR 3520

15 February 2016

Assets Affected	
Asset name	Asset reference
Aconbury SRV	R54004
Cockshoot SRV	R54120
Ridgehill SRV	R54602
Broomy Hill	T54063

THE WATER SUPPLY (WATER QUALITY) REGULATIONS 2010

NOTICE UNDER REGULATION 29(4)

DŴR CYMRU WELSH WATER: Z1068N51 Cardiff (Ely / Radyr / Llandaf)

Version Number: 1

Z1068N51 Cardiff (Ely / Radyr / Llandaf): Supply System Y8109 Sluvad/Court Farm/Llwynon

Improvement Programme Database Reference number – DWR 3521

THE WELSH MINISTERS:

1. have received a report from Dŵr Cymru Welsh Water (the “**Company**”) dated 3 July 2015 (the “**Report**”) which states that there is or has been a significant risk of supplying water from the Cardiff (Ely / Radyr / Llandaf) zone that would constitute a potential danger to human health.
2. gives Notice that the Company is required, in order to mitigate the risk, in accordance with Regulation 29(4):

For risks associated with:

- Discolouration and associated customer acceptability due to the condition and operation of the network system

(a) to maintain the existing operational measures set out in the Report and as specified below:

- i. Regulatory sampling of water at Llandegfedd, Court Farm and Llwynon works and at customers' taps
- ii. Monitoring, tracking and reporting customer contacts
- iii. Responding as required to any PCV failure or customer contact in line with company procedures. Carry out an investigation to determine the root cause of the failure and identify any remedial measures required to prevent a recurrence
- iv. Liaison with local and public health authorities as appropriate
- v. Review risk assessments for customer contacts and update regulation 29 report

(b) to review, revise and/or make operational such measures as are specified below, by the date specified below:

Short term measures

- vi. Complete Distribution zonal study (DZS) including formulating the methodology for mitigating discolouration risk in this zone **by 30 June 2016**
- vii. Ensure optimisation of Llandegfedd, Court Farm and Llwynon works with 95 percentile less than 20% PCV **Ongoing**

Medium term measures

- viii. Confirmation of programme of work identified through the DZS following cost benefit for customer acceptability **by 31 July 2018**
- ix. Confirmation of success criteria for demonstration of benefit in delivering the proposed programme of work including commencement dates and timescale for demonstration of benefit **by 31 July 2018**

Long term measures

- x. Delivery of programme of work as identified through DZS in Step (b) viii above **by 31 March 2025**

(c) to audit whether the measures have been effective by such means as specified below:

- xi. Define a strategy for auditing the effectiveness of the above measures to include the following **by 29 February 2016**;
 - Monitoring of iron and manganese levels in samples taken from Llandegfedd, Court Farm and Llwynon works
 - Implementation of enhanced sampling programme throughout the zone for Fe and Mn to 104 and 76 per year respectively
 - Review of customer contacts on quarterly basis to measure and monitor change and if necessary escalate remediation as appropriate
 - Drinking Water Safety Plan and regulation 29 reports updated in line with any new information arising
 - Review programme of work and delivery timescales to address priority areas of customer acceptability following updated information
 - Validate benefits delivered against benefits criteria set
 - Technical reports for preferred solutions where choices are available
 - Commissioning, completion and handover certificates for all work carried out in line with the programme as defined in step (b) viii
- xii. Implement the audit strategy outlined in (xi), keep under review, and resubmit when subject to change, until the revocation of this notice.

(d) NA

(e) to provide the following information in such time and manner as specified below to enable monitoring of progress:

- i. Provide a progress report annually by 31 January (to include progress against audit strategy in c) and at the following key milestones
 - Provision of the output from DZS as indicated in Step b(vi) (1 month after short term measure date) **by 31 July 2016**
 - Provision of the programme of remediation work arising from DZS and criteria for benefit setting as indicated in Step b (viii) (1 month after medium term measure date) **by 31 August 2018**
 - Delivery of remediation identified in Step b (x) (1 month after completion of last scheme) **by 30 April 2025**
 - Initial completion report **by 30 October 2026**
- ii. Review the risk assessment for Z1068N51 as required by Regulation 28(4) and subsequently submit a revised Regulation 29 report (in accordance with Regulation 29(1)) from time to time; and **by 31 July 2025**
- iii. Submit a satisfactory completion report **by 29 October 2027**.

Please be aware that breach by the Company of this Notice may result in an enforcement notice, breach of which may itself attract a penalty

This Notice may be amended or revoked by notice from the Welsh Ministers at any time.

Signed by authority of the Welsh Ministers,



Milo Purcell

Deputy Chief Inspector

DWI ref DWR 3521

15 February 2016

Assets Affected	
Asset name	Asset reference
Leckwith SRV	R67254
Radyr SRV	R67179/R67180
St Lythams SRV	R67205
Tongwynlais SRV	R67267
Treforest SRV	R300085
Llandegfedd	T48498
Court Farm	T320509
Llwynon	T67149

THE WATER SUPPLY (WATER QUALITY) REGULATIONS 2010

NOTICE UNDER REGULATION 29(4)

DŴR CYMRU WELSH WATER: Z1085N48 Cardiff (Heath / Llanishen)

Version Number: 1

Z1085N48 Cardiff (Heath / Llanishen) : Supply System Y8109 Sluvad / Court Farm / Llwynon

Improvement Programme Database Reference number – DWR 3523

THE WELSH MINISTERS:

1. have received a report from Dŵr Cymru Welsh Water (the “**Company**”) dated 7 March 2015 (the “**Report**”) which states that there is or has been a significant risk of supplying water from the Cardiff (Heath / Llanishen) zone that would constitute a potential danger to human health.
2. gives Notice that the Company is required, in order to mitigate the risk, in accordance with Regulation 29(4):

For risks associated with:

- Discolouration and associated customer acceptability due to the condition and operation of the network system

(a) to maintain the existing operational measures set out in the Report and as specified below:

- i. Regulatory sampling of water at Llandegfedd, Court Farm and Llwynon water treatment works and at customers' taps
- ii. Monitoring, tracking and reporting customer contacts
- iii. Responding as required to any PCV failure or customer contact in line with company procedures. Carry out an investigation to determine the root cause of the failure and identify any remedial measures required to prevent a recurrence
- iv. Liaison with local and public health authorities as appropriate
- v. Review risk assessments for customer contacts and update regulation 29 report

(b) to review, revise and/or make operational such measures as are specified below, by the date specified below:

Short term measures

- vi. Complete Distribution zonal study (DZS) including formulating the methodology for mitigating discolouration risk in this zone **by 30 June 2016**
- vii. Ensure optimisation of Llandegfedd, Court Farm and Llwynon works with 95 percentile less than 20% PCV **Ongoing**

Medium term measures

- viii. Confirmation of programme of work identified through the DZS following cost benefit for customer acceptability **by 31 December 2016**
- ix. Confirmation of success criteria for demonstration of benefit in delivering the proposed programme of work including commencement dates and timescale for demonstration of benefit **by 31 December 2016**

Long term measures

- x. Delivery of programme of work as identified through DZS in Step (b) viii above **by 31 March 2019**

(c) to audit whether the measures have been effective by such means as specified below:

- xi. Define a strategy for auditing the effectiveness of the above measures to include the following **by 29 February 2016**;
 - Monitoring of iron and manganese levels in samples taken from Llandegfedd, Court Farm and Llwynon works
 - Implementation of enhanced sampling programme throughout the zone for Fe and Mn to 104 and 76 per year respectively
 - Review of customer contacts on quarterly basis to measure and monitor change and if necessary escalate remediation as appropriate
 - Drinking Water Safety Plan and regulation 29 reports updated in line with any new information arising
 - Review programme of work and delivery timescales to address priority areas of customer acceptability following updated information
 - Validate benefits delivered against benefits criteria set
 - Technical reports for preferred solutions where choices are available
 - Commissioning, completion and handover certificates for all work carried out in line with the programme as defined in step (b) viii
- xii. Implement the audit strategy outlined in (xi), keep under review, and resubmit when subject to change, until the revocation of this notice.

(d) NA

(e) to provide the following information in such time and manner as specified below to enable monitoring of progress:

- i. Provide a progress report annually by 31 January (to include progress against audit strategy in c) and at the following key milestones
 - Provision of the output from DZS as indicated in Step b(vi) (1 month after short term measure date) **by 31 July 2016**
 - Provision of the programme of remediation work arising from DZS and criteria for benefit setting as indicated in Step b (viii) (1 month after medium term measure date) **by 31 January 2017**
 - Delivery of remediation identified in Step b (x) (1 month after completion of last scheme) **by 30 April 2019**
 - Initial completion report **by 30 October 2020**
- ii. Review the risk assessment for Z1085N48 as required by Regulation 28(4) and subsequently submit a revised Regulation 29 report (in accordance with Regulation 29(1)) from time to time; and **by 31 July 2019**
- iii. Submit a satisfactory completion report **by 29 October 2021**.

Please be aware that breach by the Company of this Notice may result in an enforcement notice, breach of which may itself attract a penalty

This Notice may be amended or revoked by notice from the Welsh Ministers at any time.

Signed by authority of the Welsh Ministers,



Milo Purcell

Deputy Chief Inspector

DWI ref DWR 3523

15 February 2016

Assets Affected	
Asset name	Asset reference
Graig SRV	R67289
Rhiwbina SRV	R67256
Lower Thornhill SRV	R67274
Upper Thornhill SRV	R67277
Wenallt SRV	R67328
Llandegfedd	T48498
Court Farm	T320509
Llwynon	T67149

THE WATER SUPPLY (WATER QUALITY) REGULATIONS 2010

NOTICE UNDER REGULATION 29(4)

DŴR CYMRU WELSH WATER: Z2007B14 Lleyn

Version Number: 1

Z2007B14 Lleyn : Supply System Y8034 Lleyn / Harlech

Improvement Programme Database Reference number – DWR 3526

THE WELSH MINISTERS:

1. have received a report from Dŵr Cymru Welsh Water (the “**Company**”) dated 7 March 2015 (the “**Report**”) which states that there is or has been a significant risk of supplying water from the Lleyn zone that would constitute a potential danger to human health.
2. gives Notice that the Company is required, in order to mitigate the risk, in accordance with Regulation 29(4):

For risks associated with:

- Discolouration and associated customer acceptability due to the condition and operation of the network system

(a) to maintain the existing operational measures set out in the Report and as specified below:

- i. Regulatory sampling of water at Dolbenmaen, Cwm Dulyn and Cilfor works and at customers' taps
- ii. Monitoring, tracking and reporting customer contacts
- iii. Responding as required to any PCV failure or customer contact in line with company procedures. Carry out an investigation to determine the root cause of the failure and identify any remedial measures required to prevent a recurrence
- iv. Liaison with local and public health authorities as appropriate
- v. Review risk assessments for customer contacts and update regulation 29 report

(b) to review, revise and/or make operational such measures as are specified below, by the date specified below:

Short term measures

- vi. Complete Distribution zonal study (DZS) including formulating the methodology for mitigating discolouration risk in this zone **by 30 June 2016**
- vii. Ensure optimisation of Dolbenmaen , Cwm Dulyn and Cilfor works with 95 percentile less than 20% PCV **Ongoing**

Medium term measures

- viii. Confirmation of programme of work identified through the DZS following cost benefit for customer acceptability **by 31 July 2018**
- ix. Confirmation of success criteria for demonstration of benefit in delivering the proposed programme of work including commencement dates and timescale for demonstration of benefit **by 31 July 2018**

Long term measures

- x. Delivery of programme of work as identified through DZS in Step (b) viii above **by 31 March 2025**

(c) to audit whether the measures have been effective by such means as specified below:

- xi. Define a strategy for auditing the effectiveness of the above measures to include the following **by 29 February 2016**;
 - Monitoring of iron and manganese levels in samples taken from Dolbenmaen, Cwm Dulyn and Cilfor works
 - Implementation of enhanced sampling programme throughout the zone for Fe and Mn to 24 per year
 - Review of customer contacts on quarterly basis to measure and monitor change and if necessary escalate remediation as appropriate
 - Drinking Water Safety Plan and regulation 29 reports updated in line with any new information arising
 - Review programme of work and delivery timescales to address priority areas of customer acceptability following updated information
 - Validate benefits delivered against benefits criteria set
 - Technical reports for preferred solutions where choices are available
 - Commissioning, completion and handover certificates for all work carried out in line with the programme as defined in step (b) viii
- xii. Implement the audit strategy outlined in (xi), keep under review, and resubmit when subject to change, until the revocation of this notice.

(d) NA

(e) to provide the following information in such time and manner as specified below to enable monitoring of progress:

- i. Provide a progress report annually by 31 January (to include progress against audit strategy in c) and at the following key milestones
 - Provision of the output from DZS as indicated in Step b(vi) (1 month after short term measure date) **by 31 July 2016**
 - Provision of the programme of remediation work arising from DZS and criteria for benefit setting as indicated in Step b (viii) (1 month after medium term measure date) **by 31 August 2018**
 - Delivery of remediation identified in Step b (x) (1 month after completion of last scheme) **by 30 April 2025**
 - Initial completion report **by 30 October 2026**
- ii. Review the risk assessment for Z2007B14 as required by Regulation 28(4) and subsequently submit a revised Regulation 29 report (in accordance with Regulation 29(1)) from time to time; and **by 31 July 2025**
- iii. Submit a satisfactory completion report **by 29 October 2027**.

Please be aware that breach by the Company of this Notice may result in an enforcement notice, breach of which may itself attract a penalty

This Notice may be amended or revoked by notice from the Welsh Ministers at any time.

Signed by authority of the Welsh Ministers,



Milo Purcell

Deputy Chief Inspector

DWI ref DWR 3526

15 February 2016

Assets Affected	
Asset name	Asset reference
Beudy Mawr SRV	R645003
Coed y Fron SRV	R645016
Garn Fadryn SRV	R645025
Llanaelhaearn SRV	R645368
Llithfaen SRV	R645032
Moel y Penmaen SRV	R645034
Nefyn SRV	R645042
Portmadog SRV	R645363
Rhiw SRV	R645046
Rhyd SRV	R645386
Saethon Fawr SRV	R645057
Sychnant SRV	R645051
Ty Croes SRV	R645062
Yokehouse SRV	R645058
Dolbenmaen works	T642122
Cwm Dulyn works	T628512
Cilfor works	T641622

THE WATER SUPPLY (WATER QUALITY) REGULATIONS 2010

NOTICE UNDER REGULATION 29(4)

DŴR CYMRU WELSH WATER: Z2023D12 Aberystwyth(Bontgoch/Lovesgrove)

Version Number: 1

Z2023D12 Aberystwyth(Bontgoch/Lovesgrove) : Supply System Y8023 North Ceredigion

Improvement Programme Database Reference number – DWR 3529

THE WELSH MINISTERS:

1. have received a report from Dŵr Cymru Welsh Water (the “**Company**”) dated 6 March 2015 (the “**Report**”) which states that there is or has been a significant risk of supplying water from the Aberystwyth (Bontgoch/Lovesgrove) zone that would constitute a potential danger to human health.
2. gives Notice that the Company is required, in order to mitigate the risk, in accordance with Regulation 29(4):

For risks associated with:

- Discolouration and associated customer acceptability due to the condition and operation of the network system

(a) to maintain the existing operational measures set out in the Report and as specified below:

- i. Regulatory sampling of water at Bontgoch and Cefnllan works and at customers' taps
- ii. Monitoring, tracking and reporting customer contacts
- iii. Responding as required to any PCV failure or customer contact in line with company procedures. Carry out an investigation to determine the root cause of the failure and identify any remedial measures required to prevent a recurrence
- iv. Liaison with local and public health authorities as appropriate
- v. Review risk assessments for customer contacts and update regulation 29 report

(b) to review, revise and/or make operational such measures as are specified below, by the date specified below:

Short term measures

- vi. Complete Distribution zonal study (DZS) including formulating the methodology for mitigating discolouration risk in this zone **by 30 June 2016**
- vii. Ensure optimisation of Bontgoch and Cefnllan works with 95 percentile less than 20% PCV **Ongoing**

Medium term measures

- viii. Confirmation of programme of work identified through the DZS following cost benefit for customer acceptability **by 31 July 2018**
- ix. Confirmation of success criteria for demonstration of benefit in delivering the proposed programme of work including commencement dates and timescale for demonstration of benefit **by 31 July 2018**

Long term measures

- x. Delivery of programme of work as identified through DZS in Step (b) viii above **by 31 March 2025**

(c) to audit whether the measures have been effective by such means as specified below:

- xi. Define a strategy for auditing the effectiveness of the above measures to include the following **by 29 February 2016**;
 - Monitoring of iron and manganese levels in samples taken from Bontgoch and Cefnllan works
 - Implementation of enhanced sampling programme throughout the zone for Fe and Mn to 24 and 48 per year respectively
 - Review of customer contacts on quarterly basis to measure and monitor change and if necessary escalate remediation as appropriate
 - Drinking Water Safety Plan and regulation 29 reports updated in line with any new information arising
 - Review programme of work and delivery timescales to address priority areas of customer acceptability following updated information
 - Validate benefits delivered against benefits criteria set
 - Technical reports for preferred solutions where choices are available
 - Commissioning, completion and handover certificates for all work carried out in line with the programme as defined in step (b) viii
- xii. Implement the audit strategy outlined in (xi), keep under review, and resubmit when subject to change, until the revocation of this notice.

(d) NA

(e) to provide the following information in such time and manner as specified below to enable monitoring of progress:

- i. Provide a progress report annually by 31 January (to include progress against audit strategy in c) and at the following key milestones
 - Provision of the output from DZS as indicated in Step b(vi) (1 month after short term measure date) **by 31 July 2017**
 - Provision of the programme of remediation work arising from DZS and criteria for benefit setting as indicated in Step b (viii) (1 month after medium term measure date) **by 31 August 2018**
 - Delivery of remediation identified in Step b (x) (1 month after completion of last scheme) **by 30 April 2025**
 - Initial completion report **by 30 October 2026**
- ii. Review the risk assessment for Z2023D12 as required by Regulation 28(4) and subsequently submit a revised Regulation 29 report (in accordance with Regulation 29(1)) from time to time; and **by 31 July 2025**
- iii. Submit a satisfactory completion report **by 29 October 2027**.

Please be aware that breach by the Company of this Notice may result in an enforcement notice, breach of which may itself attract a penalty

This Notice may be amended or revoked by notice from the Welsh Ministers at any time.

Signed by authority of the Welsh Ministers,



Milo Purcell

Deputy Chief Inspector

DWI ref DWR 3529

15 February 2016

Assets Affected	
Asset name	Asset reference
Bont Goch	T121400
Cefnllan	T125012

THE WATER SUPPLY (WATER QUALITY) REGULATIONS 2010

NOTICE UNDER REGULATION 29(4)

DŴR CYMRU WELSH WATER: Z2031G28 Bryngwyn

Version Number: 1

Z2031G28 Bryngwyn : Supply System Y8201 Tywi

Improvement Programme Database Reference number – DWR 3532

THE WELSH MINISTERS:

1. have received a report from Dŵr Cymru Welsh Water (the “**Company**”) dated 6 March 2015 (the “**Report**”) which states that there is or has been a significant risk of supplying water from the Bryngwyn zone that would constitute a potential danger to human health.
2. gives Notice that the Company is required, in order to mitigate the risk, in accordance with Regulation 29(4):

For risks associated with:

- Discolouration and associated customer acceptability due to the condition and operation of the network system

(a) to maintain the existing operational measures set out in the Report and as specified below:

- i. Regulatory sampling of water at Bryngwyn works and at customers' taps
- ii. Monitoring, tracking and reporting customer contacts
- iii. Responding as required to any PCV failure or customer contact in line with company procedures. Carry out an investigation to determine the root cause of the failure and identify any remedial measures required to prevent a recurrence
- iv. Liaison with local and public health authorities as appropriate
- v. Review risk assessments for customer contacts and update regulation 29 report

(b) to review, revise and/or make operational such measures as are specified below, by the date specified below:

Short term measures

- vi. Complete Distribution zonal study (DZS) including formulating the methodology for mitigating discolouration risk in this zone **by 30 June 2016**
- vii. Ensure optimisation of Bryngwyn works with 95 percentile less than 20% PCV **Ongoing**

Medium term measures

- viii. Confirmation of programme of work identified through the DZS following cost benefit for customer acceptability **by 31 December 2016**
- ix. Confirmation of success criteria for demonstration of benefit in delivering the proposed programme of work including commencement dates and timescale for demonstration of benefit **by 31 December 2016**

Long term measures

- x. Delivery of programme of work as identified through DZS in Step (b) viii above **by 31 March 2019**

(c) to audit whether the measures have been effective by such means as specified below:

- xi. Define a strategy for auditing the effectiveness of the above measures to include the following **by 29 February 2016**;
 - Monitoring of iron and manganese levels in samples taken from Bryngwyn works
 - Implementation of enhanced sampling programme throughout the zone for Fe and Mn to 104 and 52 per year respectively
 - Review of customer contacts on quarterly basis to measure and monitor change and if necessary escalate remediation as appropriate
 - Drinking Water Safety Plan and regulation 29 reports updated in line with any new information arising
 - Review programme of work and delivery timescales to address priority areas of customer acceptability following updated information
 - Validate benefits delivered against benefits criteria set
 - Technical reports for preferred solutions where choices are available
 - Commissioning, completion and handover certificates for all work carried out in line with the programme as defined in step (b) viii
- xii. Implement the audit strategy outlined in (xi), keep under review, and resubmit when subject to change, until the revocation of this notice.

(d) NA

(e) to provide the following information in such time and manner as specified below to enable monitoring of progress:

- i. Provide a progress report annually by 31 January (to include progress against audit strategy in c) and at the following key milestones
 - Provision of the output from DZS as indicated in Step b(vi) (1 month after short term measure date) **by 31 July 2016**
 - Provision of the programme of remediation work arising from DZS and criteria for benefit setting as indicated in Step b (viii) (1 month after medium term measure date) **by 31 January 2017**
 - Delivery of remediation identified in Step b (x) (1 month after completion of last scheme) **by 30 April 2019**
 - Initial completion report **by 30 October 2020**
- ii. Review the risk assessment for Z2031G28 as required by Regulation 28(4) and subsequently submit a revised Regulation 29 report (in accordance with Regulation 29(1)) from time to time; and **by 31 July 2019**
- iii. Submit a satisfactory completion report **by 29 October 2021**.

Please be aware that breach by the Company of this Notice may result in an enforcement notice, breach of which may itself attract a penalty

This Notice may be amended or revoked by notice from the Welsh Ministers at any time.

Signed by authority of the Welsh Ministers,



Milo Purcell

Deputy Chief Inspector

DWI ref DWR 3532

15 February 2016

Assets Affected	
Asset name	Asset reference
Bryngwyn SRV	R77023
Carn Powell SRV	R79146
Llannon SRV	R77209
Betws No 1 SRV	R77013
Garn SRV	R77146
Glyndraenog SRV	R79050
Gorsedd SRV	R77167
Graig Fawr SRV	R79006
Waterloo SRV	R77358
Bryngwyn works	T77092

THE WATER SUPPLY (WATER QUALITY) REGULATIONS 2010

NOTICE UNDER REGULATION 29(4)

DŴR CYMRU WELSH WATER: Z2054H24 Llyswen

Version Number: 1

Z2054H24 Llyswen : Supply System Y8105 Llyswen

Improvement Programme Database Reference number – DWR 35133

THE WELSH MINISTERS:

1. have received a report from Dŵr Cymru Welsh Water (the “**Company**”) dated 7 March 2015 (the “**Report**”) which states that there is or has been a significant risk of supplying water from the Llyswen zone that would constitute a potential danger to human health.
2. gives Notice that the Company is required, in order to mitigate the risk, in accordance with Regulation 29(4):

For risks associated with:

- Discolouration and associated customer acceptability due to the condition and operation of the network system

(a) to maintain the existing operational measures set out in the Report and as specified below:

- i. Regulatory sampling of water at Llyswen works and at customers' taps
- ii. Monitoring, tracking and reporting customer contacts
- iii. Responding as required to any PCV failure or customer contact in line with company procedures. Carry out an investigation to determine the root cause of the failure and identify any remedial measures required to prevent a recurrence
- iv. Liaison with local and public health authorities as appropriate
- v. Review risk assessments for customer contacts and update regulation 29 report

(b) to review, revise and/or make operational such measures as are specified below, by the date specified below:

Short term measures

- vi. Completion of hydraulic model of network system **by 31 March 2016**
- vii. Ensure optimisation of Llyswen works with 95 percentile less than 20% PCV **Ongoing**

Medium term measures

- viii. Confirmation of programme of work identified through the model following cost benefit for customer acceptability **by 31 December 2016**
- ix. Confirmation of success criteria for demonstration of benefit in delivering the proposed programme of work including commencement dates and timescale for demonstration of benefit **by 31 December 2016**

Long term measures

- x. Delivery of programme of work as identified through DZS in Step (b) viii above **by 31 March 2020**

(c) to audit whether the measures have been effective by such means as specified below:

- xi. Define a strategy for auditing the effectiveness of the above measures to include the following **by 29 February 2016**;
 - Monitoring of iron and manganese levels in samples taken from Llyswen works
 - Implementation of enhanced sampling programme throughout the zone for Fe and Mn to 24 and 12 per year respectively
 - Review of customer contacts on quarterly basis to measure and monitor change and if necessary escalate remediation as appropriate
 - Drinking Water Safety Plan and regulation 29 reports updated in line with any new information arising
 - Review programme of work and delivery timescales to address priority areas of customer acceptability following updated information
 - Validate benefits delivered against benefits criteria set
 - Technical reports for preferred solutions where choices are available
 - Commissioning, completion and handover certificates for all work carried out in line with the programme as defined in step (b) viii
- xii. Implement the audit strategy outlined in (xi), keep under review, and resubmit when subject to change, until the revocation of this notice.

(d) NA

(e) to provide the following information in such time and manner as specified below to enable monitoring of progress:

- i. Provide a progress report annually by 31 January (to include progress against audit strategy in c) and at the following key milestones
 - Provision of the model as indicated in Step b(vi) (1 month after short term measure date) **by 29 April 2016**
 - Provision of the programme of remediation work arising from model and criteria for benefit setting as indicated in Step b (viii) (1 month after medium term measure date) **by 31 January 2017**
 - Delivery of remediation identified in Step b (x) (1 month after completion of last scheme) **by 30 April 2020**
 - Initial completion report **by 29 October 2021**
- ii. Review the risk assessment for Z2054H24 as required by Regulation 28(4) and subsequently submit a revised Regulation 29 report (in accordance with Regulation 29(1)) from time to time); and **by 30 June 2020**
- iii. Submit a satisfactory completion report **by 31 October 2022.**

Please be aware that breach by the Company of this Notice may result in an enforcement notice, breach of which may itself attract a penalty

This Notice may be amended or revoked by notice from the Welsh Ministers at any time.

Signed by authority of the Welsh Ministers,



Milo Purcell

Deputy Chief Inspector

DWI ref DWR 3533

15 February 2016

Assets Affected	
Asset name	Asset reference
Dorstone SRV	R54199
Genfordd Isaf SRV	R54292
Llanigon SRV	R54432
Llanstephan SRV	R54438
Llyswen works	T54452

THE WATER SUPPLY (WATER QUALITY) REGULATIONS 2010

NOTICE UNDER REGULATION 29(4)

DŴR CYMRU WELSH WATER: Z2064L21 Abergavenny / Cwmtillery

Version Number: 1

Z2064L21 Abergavenny / Cwmtillery : Supply System Y8116 Talybont

Improvement Programme Database Reference number – DWR 3536

THE WELSH MINISTERS:

1. have received a report from Dŵr Cymru Welsh Water (the “**Company**”) dated 6 March 2015 (the “**Report**”) which states that there is or has been a significant risk of supplying water from the Abergavenny / Cwmtillery zone that would constitute a potential danger to human health.
2. gives Notice that the Company is required, in order to mitigate the risk, in accordance with Regulation 29(4):

For risks associated with:

- Discolouration and associated customer acceptability due to the condition and operation of the network system

(a) to maintain the existing operational measures set out in the Report and as specified below:

- i. Regulatory sampling of water at Talybont works and at customers' taps
- ii. Monitoring, tracking and reporting customer contacts
- iii. Responding as required to any PCV failure or customer contact in line with company procedures. Carry out an investigation to determine the root cause of the failure and identify any remedial measures required to prevent a recurrence
- iv. Liaison with local and public health authorities as appropriate
- v. Review risk assessments for customer contacts and update regulation 29 report

(b) to review, revise and/or make operational such measures as are specified below, by the date specified below:

Short term measures

- vi. Complete Distribution zonal study (DZS) including formulating the methodology for mitigating discolouration risk in this zone **by 30 June 2016**
- vii. Ensure optimisation of Talybont works with 95 percentile less than 20% PCV **Ongoing**

Medium term measures

- viii. Confirmation of programme of work identified through the DZS following cost benefit for customer acceptability **by 31 December 2016**
- ix. Confirmation of success criteria for demonstration of benefit in delivering the proposed programme of work including commencement dates and timescale for demonstration of benefit **by 31 December 2016**

Long term measures

- x. Delivery of programme of work as identified through DZS in Step (b) viii above **by 31 March 2018**

(c) to audit whether the measures have been effective by such means as specified below:

- xi. Define a strategy for auditing the effectiveness of the above measures to include the following **by 29 February 2016**;
 - Monitoring of iron and manganese levels in samples taken from Talybont works
 - Implementation of enhanced sampling programme throughout the zone for Fe and Mn to 104 per year
 - Review of customer contacts on quarterly basis to measure and monitor change and if necessary escalate remediation as appropriate
 - Drinking Water Safety Plan and regulation 29 reports updated in line with any new information arising
 - Review programme of work and delivery timescales to address priority areas of customer acceptability following updated information
 - Validate benefits delivered against benefits criteria set
 - Technical reports for preferred solutions where choices are available
 - Commissioning, completion and handover certificates for all work carried out in line with the programme as defined in step (b) viii
- xii. Implement the audit strategy outlined in (xi), keep under review, and resubmit when subject to change, until the revocation of this notice.

(d) NA

(e) to provide the following information in such time and manner as specified below to enable monitoring of progress:

- i. Provide a progress report annually by 31 January (to include progress against audit strategy in c) and at the following key milestones
 - Provision of the output from DZS as indicated in Step b(vi) (1 month after short term measure date) **by 31 July 2016**
 - Provision of the programme of remediation work arising from DZS and criteria for benefit setting as indicated in Step b (viii) (1 month after medium term measure date) **by 31 January 2017**
 - Delivery of remediation identified in Step b (x) (1 month after completion of last scheme) **by 30 April 2018**
 - Initial completion report **by 31 October 2019**
- ii. Review the risk assessment for Z2064L21 as required by Regulation 28(4) and subsequently submit a revised Regulation 29 report (in accordance with Regulation 29(1)) from time to time); and **by 31 July 2018**
- iii. Submit a satisfactory completion report **by 30 October 2020**.

Please be aware that breach by the Company of this Notice may result in an enforcement notice, breach of which may itself attract a penalty

This Notice may be amended or revoked by notice from the Welsh Ministers at any time.

Signed by authority of the Welsh Ministers,



Milo Purcell

Deputy Chief Inspector

DWI ref DWR 3536

15 February 2016

Assets Affected	
Asset name	Asset reference
Mynyddislwyn SRV	R49639
Pantygasseg SRV	R49660
Penyfan SRV	R48385
Tranch SRV	R49758
Treveithin SRV	R49861
Varteg SRV	R49752
Talybont works	T48562

THE WATER SUPPLY (WATER QUALITY) REGULATIONS 2010

NOTICE UNDER REGULATION 29(4)

DŴR CYMRU WELSH WATER: Z7076L45 Rassau / Sirhowy Valley

Version Number: 1

Z7076L45 Rassau / Sirhowy Valley : Supply System Y8119 Pontsticill High Level / Heads of Valleys

Improvement Programme Database Reference number – DWR 3538

THE WELSH MINISTERS:

1. have received a report from Dŵr Cymru Welsh Water (the “**Company**”) dated 11 March 2015 (the “**Report**”) which states that there is or has been a significant risk of supplying water from the Rassau / Sirhowy Valley zone that would constitute a potential danger to human health.
2. gives Notice that the Company is required, in order to mitigate the risk, in accordance with Regulation 29(4):

For risks associated with:

- Discolouration and associated customer acceptability due to the condition and operation of the network system

(a) to maintain the existing operational measures set out in the Report and as specified below:

- i. Regulatory sampling of water at Pontsticill, Carno, Nantybwch and Talybont works and at customers' taps
- ii. Monitoring, tracking and reporting customer contacts
- iii. Responding as required to any PCV failure or customer contact in line with company procedures. Carry out an investigation to determine the root cause of the failure and identify any remedial measures required to prevent a recurrence
- iv. Liaison with local and public health authorities as appropriate
- v. Review risk assessments for customer contacts and update regulation 29 report

(b) to review, revise and/or make operational such measures as are specified below, by the date specified below:

Short term measures

- vi. Complete Distribution zonal study (DZS) including formulating the methodology for mitigating discolouration risk in this zone **by 30 June 2016**
- vii. Ensure optimisation of Pontsticill, Carno, Nantybwlch and Talybont works with 95 percentile less than 20% PCV **Ongoing**

Medium term measures

- viii. Confirmation of programme of work identified through the DZS following cost benefit for customer acceptability **by 31 December 2016**
- ix. Confirmation of success criteria for demonstration of benefit in delivering the proposed programme of work including commencement dates and timescale for demonstration of benefit **by 31 December 2016**

Long term measures

- x. Delivery of programme of work as identified through DZS in Step (b) viii above **by 31 March 2020**

(c) to audit whether the measures have been effective by such means as specified below:

- xi. Define a strategy for auditing the effectiveness of the above measures to include the following **by 29 February 2016**;
 - Monitoring of iron and manganese levels in samples taken from Pontsticill, Carno, Nantybwlch and Talybont works
 - Implementation of enhanced sampling programme throughout the zone for Fe and Mn to 76 per year
 - Review of customer contacts on quarterly basis to measure and monitor change and if necessary escalate remediation as appropriate
 - Drinking Water Safety Plan and regulation 29 reports updated in line with any new information arising
 - Review programme of work and delivery timescales to address priority areas of customer acceptability following updated information
 - Validate benefits delivered against benefits criteria set
 - Technical reports for preferred solutions where choices are available
 - Commissioning, completion and handover certificates for all work carried out in line with the programme as defined in step (b) viii
- xii. Implement the audit strategy outlined in (xi), keep under review, and resubmit when subject to change, until the revocation of this notice.

(d) NA

(e) to provide the following information in such time and manner as specified below to enable monitoring of progress:

- i. Provide a progress report annually by 31 January (to include progress against audit strategy in c) and at the following key milestones
 - Provision of the output from DZS as indicated in Step b(vi) (1 month after short term measure date) **by 31 July 2016**
 - Provision of the programme of remediation work arising from DZS and criteria for benefit setting as indicated in Step b (viii) (1 month after medium term measure date) **by 31 January 2017**
 - Delivery of remediation identified in Step b (x) (1 month after completion of last scheme) **by 30 April 2020**
 - Initial completion report **by 29 October 2021**
- ii. Review the risk assessment for Z7076L45 as required by Regulation 28(4) and subsequently submit a revised Regulation 29 report (in accordance with Regulation 29(1)) from time to time; and **by 31 July 2020**
- iii. Submit a satisfactory completion report **by 31 October 2022**.

Please be aware that breach by the Company of this Notice may result in an enforcement notice, breach of which may itself attract a penalty

This Notice may be amended or revoked by notice from the Welsh Ministers at any time.

Signed by authority of the Welsh Ministers,



Milo Purcell

Deputy Chief Inspector

DWI ref DWR 3538

15 February 2016

Assets Affected	
Asset name	Asset reference
Markham SRV	R49626
Rassau SRV	R49681
Tafarnaubach No 1 SRV	R49703
Tafarnaubach No 2 SRV	R49707
Trefil SRV	R49723
Ty Fry SRV	R49743
Georgetown SRV	R48210
Pontsticill works	T67034
Carno works	T48287
Nantybawch works	T320200
Talybont works	T48562

THE WATER SUPPLY (WATER QUALITY) REGULATIONS 2010

NOTICE UNDER REGULATION 29(4)

DŴR CYMRU WELSH WATER: Z7078N41 Rhymney / Bargoed

Version Number: 1

Z7078N41 Rhymney / Bargoed : Supply System Y8119 Pontsticill High Level/Heads of the Valley

Improvement Programme Database Reference number – DWR 3539

THE WELSH MINISTERS:

1. have received a report from Dŵr Cymru Welsh Water (the “**Company**”) dated 12 March 2015 (the “**Report**”) which states that there is or has been a significant risk of supplying water from the Rhymney / Bargoed zone that would constitute a potential danger to human health.
2. gives Notice that the Company is required, in order to mitigate the risk, in accordance with Regulation 29(4):

For risks associated with:

- Discolouration and associated customer acceptability due to the condition and operation of the network system

(a) to maintain the existing operational measures set out in the Report and as specified below:

- i. Regulatory sampling of water at Pontsticill, Cantref and Llwynon works and at customers' taps
- ii. Monitoring, tracking and reporting customer contacts
- iii. Responding as required to any PCV failure or customer contact in line with company procedures. Carry out an investigation to determine the root cause of the failure and identify any remedial measures required to prevent a recurrence
- iv. Liaison with local and public health authorities as appropriate
- v. Review risk assessments for customer contacts and update regulation 29 report

(b) to review, revise and/or make operational such measures as are specified below, by the date specified below:

Short term measures

- vi. Complete Distribution zonal study (DZS) including formulating the methodology for mitigating discolouration risk in this zone **by 30 June 2016**
- vii. Ensure optimisation of Pontsticill, Cantref and Llwynon works with 95 percentile less than 20% PCV **Ongoing**

Medium term measures

- viii. Confirmation of programme of work identified through the DZS following cost benefit for customer acceptability **by 31 December 2016**
- ix. Confirmation of success criteria for demonstration of benefit in delivering the proposed programme of work including commencement dates and timescale for demonstration of benefit **by 31 December 2016**

Long term measures

- x. Delivery of programme of work as identified through DZS in Step (b) viii above **by 31 March 2018**

(c) to audit whether the measures have been effective by such means as specified below:

- xi. Define a strategy for auditing the effectiveness of the above measures to include the following **by 29 February 2016**;
 - Monitoring of iron and manganese levels in samples taken from Pontsticill, Cantref and Llwynon works
 - Implementation of enhanced sampling programme throughout the zone for Fe and Mn to 104 and 76 per year respectively
 - Review of customer contacts on quarterly basis to measure and monitor change and if necessary escalate remediation as appropriate
 - Drinking Water Safety Plan and regulation 29 reports updated in line with any new information arising
 - Review programme of work and delivery timescales to address priority areas of customer acceptability following updated information
 - Validate benefits delivered against benefits criteria set
 - Technical reports for preferred solutions where choices are available
 - Commissioning, completion and handover certificates for all work carried out in line with the programme as defined in step (b) viii
- xii. Implement the audit strategy outlined in (xi), keep under review, and resubmit when subject to change, until the revocation of this notice.

(d) NA

(e) to provide the following information in such time and manner as specified below to enable monitoring of progress:

- i. Provide a progress report annually by 31 January (to include progress against audit strategy in c) and at the following key milestones
 - Provision of the output from DZS as indicated in Step b(vi) (1 month after short term measure date) **by 31 July 2016**
 - Provision of the programme of remediation work arising from DZS and criteria for benefit setting as indicated in Step b (viii) (1 month after medium term measure date) **by 31 January 2017**
 - Delivery of remediation identified in Step b (x) (1 month after completion of last scheme) **by 30 April 2018**
 - Initial completion report **by 31 October 2019**
- ii. Review the risk assessment for Z7078N41 as required by Regulation 28(4) and subsequently submit a revised Regulation 29 report (in accordance with Regulation 29(1)) from time to time; and **by 31 July 2018**
- iii. Submit a satisfactory completion report **by 30 October 2020**.

Please be aware that breach by the Company of this Notice may result in an enforcement notice, breach of which may itself attract a penalty

This Notice may be amended or revoked by notice from the Welsh Ministers at any time.

Signed by authority of the Welsh Ministers,



Milo Purcell

Deputy Chief Inspector

DWI ref DWR 3539

15 February 2016

Assets Affected	
Asset name	Asset reference
Gilfach Fargoed SRV	R67323
Gelliwen SRV	R67321
Heolddu SRV	R67322
Markham SRV	R49626
Pengarnddu SRV	R67291
Pengarnddu New SRV	R301166
Pontllanfraith SRV	R49870
Rhymney Bridge SRV	R67276
Ty Canol SRV	R300350
Ty Fry SRV	R49743
Pontsticill works	T67034
Cantref works	T67151
Llwynon works	T67149

THE WATER SUPPLY (WATER QUALITY) REGULATIONS 2010

NOTICE UNDER REGULATION 29(4)

DŴR CYMRU WELSH WATER: Z7081L51 Newport SW / Risca / Abercarn

Version Number: 1

Z7081L51 Newport SW / Risca / Abercarn: Supply System Y8109 Sluvad/Court Farm/Llwynon

Improvement Programme Database Reference number – DWR 3540

THE WELSH MINISTERS:

1. have received a report from Dŵr Cymru Welsh Water (the “**Company**”) dated 11 March 2015 (the “**Report**”) which states that there is or has been a significant risk of supplying water from the Newport SW / Risca / Abercarn zone that would constitute a potential danger to human health.
2. gives Notice that the Company is required, in order to mitigate the risk, in accordance with Regulation 29(4):

For risks associated with:

- Discolouration and associated customer acceptability due to the condition and operation of the network system

(a) to maintain the existing operational measures set out in the Report and as specified below:

- i. Regulatory sampling of water at Court Farm and Llandegfedd works and at customers' taps
- ii. Monitoring, tracking and reporting customer contacts
- iii. Responding as required to any PCV failure or customer contact in line with company procedures. Carry out an investigation to determine the root cause of the failure and identify any remedial measures required to prevent a recurrence
- iv. Liaison with local and public health authorities as appropriate
- v. Review risk assessments for customer contacts and update regulation 29 report

(b) to review, revise and/or make operational such measures as are specified below, by the date specified below:

Short term measures

- vi. Complete Distribution zonal study (DZS) including formulating the methodology for mitigating discolouration risk in this zone **by 30 June 2016**
- vii. Ensure optimisation of Court Farm and Llandegfedd works with 95 percentile less than 20% PCV **Ongoing**

Medium term measures

- viii. Confirmation of programme of work identified through the DZS following cost benefit for customer acceptability **by 31 July 2018**
- ix. Confirmation of success criteria for demonstration of benefit in delivering the proposed programme of work including commencement dates and timescale for demonstration of benefit **by 31 July 2018**

Long term measures

- x. Delivery of programme of work as identified through DZS in Step (b) viii above **by 31 March 2025**

(c) to audit whether the measures have been effective by such means as specified below:

- xi. Define a strategy for auditing the effectiveness of the above measures to include the following **by 29 February 2016**;
 - Monitoring of iron and manganese levels in samples taken from Court Farm and Llandegfedd works
 - Implementation of enhanced sampling programme throughout the zone for Fe and Mn to 104 and 52 per year respectively
 - Review of customer contacts on quarterly basis to measure and monitor change and if necessary escalate remediation as appropriate
 - Drinking Water Safety Plan and regulation 29 reports updated in line with any new information arising
 - Review programme of work and delivery timescales to address priority areas of customer acceptability following updated information
 - Validate benefits delivered against benefits criteria set
 - Technical reports for preferred solutions where choices are available
 - Commissioning, completion and handover certificates for all work carried out in line with the programme as defined in step (b) viii
- xii. Implement the audit strategy outlined in (xi), keep under review, and resubmit when subject to change, until the revocation of this notice.

(d) NA

(e) to provide the following information in such time and manner as specified below to enable monitoring of progress:

- i. Provide a progress report annually by 31 January (to include progress against audit strategy in c) and at the following key milestones
 - Provision of the output from DZS as indicated in Step b(vi) (1 month after short term measure date) **by 31 July 2016**
 - Provision of the programme of remediation work arising from DZS and criteria for benefit setting as indicated in Step b (viii) (1 month after medium term measure date) **by 31 August 2018**
 - Delivery of remediation identified in Step b (x) (1 month after completion of last scheme) **by 30 April 2025**
 - Initial completion report **by 30 October 2026**
- ii. Review the risk assessment for Z7081L51 as required by Regulation 28(4) and subsequently submit a revised Regulation 29 report (in accordance with Regulation 29(1)) from time to time; and **by 31 July 2025**
- iii. Submit a satisfactory completion report **by 29 October 2027**.

Please be aware that breach by the Company of this Notice may result in an enforcement notice, breach of which may itself attract a penalty

This Notice may be amended or revoked by notice from the Welsh Ministers at any time.

Signed by authority of the Welsh Ministers,



Milo Purcell

Deputy Chief Inspector

DWI ref DWR 3540

15 February 2016

Assets Affected	
Asset name	Asset reference
Cribbarth SRV	R49483
Duffryn SRV	R49507
Mynyddislwyn SRV	R49639
Pantside SRV	R49652
Court Farm	T320509
Llandegfedd	T48498



Appendix 2 – DWI notice DWR 3534

THE WATER SUPPLY (WATER QUALITY) REGULATIONS 2010 (AS AMENDED)

NOTICE UNDER REGULATION 29(4)

DŴR CYMRU WELSH WATER: Z2058H52 Hereford North

Version Number: 2

Z2058H52 Hereford North : Supply System Y8103 Hereford

Improvement Programme Database Reference number – DWR 3534

THE WELSH MINISTERS:

1. have received a report from Dŵr Cymru Welsh Water (the “**Company**”) dated 7 March 2015 (the “**Report**”) which states that there is or has been a significant risk of supplying water from the Hereford North zone that could constitute a potential danger to human health.
2. **GIVE NOTICE** to the Company under regulation 29(4) of the Water Supply (Water Quality) Regulations 2010 (as amended) that it must satisfy the following requirements:

For risks associated with:

- Discolouration and associated customer acceptability due to the condition and operation of the network system.

Requirements

Date until/by which requirements must be maintained/ satisfied (as appropriate)

(a) to maintain the following measures for the period specified

- | | |
|---|----------------|
| <ol style="list-style-type: none"> i. Regulatory sampling of water at Broomy Hill water treatment works and at customers' taps. ii. Monitoring, tracking and reporting customer contacts iii. Responding as required to any PCV failure or customer contact in line with company procedures. Carry out an investigation to determine the root cause of the failure and identify any remedial measures required to prevent a recurrence iv. Liaison with local and public health authorities | <p>Ongoing</p> |
|---|----------------|

- as appropriate
- v. Review risk assessments for customer contacts and update regulation 29 report

(b) to review, revise and/or make operational the following measures, by the date specified below:

- | | | |
|-------|---|---------------|
| vi. | Complete Distribution zonal study (DZS) including formulating the methodology for mitigating discolouration risk in this zone. | Completed |
| vii. | Ensure optimisation Broomy Hill works with 95 percentile less than 20% PCV. | Ongoing |
| viii. | Confirmation of programme of work identified through the DZS following cost benefit for customer acceptability. | 31 March 2018 |
| ix. | Confirmation of success criteria for demonstration of benefit in delivering the proposed programme of work including commencement dates and timescale for demonstration of benefit. | 31 March 2018 |
| x. | Delivery of programme of work as identified through DZS in Step (b) viii above. | 31 March 2020 |

(c) to audit whether the measures have been effective by the following means:

- | | | |
|-----|--|-----------|
| xi. | Define a strategy for auditing the effectiveness of the above measures to include the following by 29 February 2016; | Completed |
|-----|--|-----------|
- Monitoring of iron and manganese levels in samples taken Broomy Hill works.
 - Implementation of enhanced sampling programme throughout the zone for Fe and Mn to 104 and 76 per year respectively.
 - Review of customer contacts on quarterly basis to measure and monitor change and if necessary escalate remediation as appropriate.
 - Drinking Water Safety Plan and regulation 29 reports updated in line with any new information arising.
 - Review programme of work and delivery timescales to address priority areas of customer acceptability following updated information.
 - Validate benefits delivered against benefits criteria set.
 - Technical reports for preferred solutions where choices are available.
 - Commissioning, completion and handover certificates for all work carried out in line with the programme

- as defined in step (b) viii
- xii. Implement the audit strategy outlined in (xi), keep under review, and resubmit when subject to change. Until revocation of this Notice

(d) N/A

(e) to provide the following information in the time and manner specified below to enable monitoring of progress towards the mitigation of the risk of supplying water that would constitute a potential danger to human health:

- | | | |
|------|--|-----------------|
| i. | Provide a progress report annually by 31 January and against the following milestones: | |
| | • Provision of the output from DZS as indicated in Step b(vi). | Completed |
| | • Provision of the programme of remediation work arising from DZS and criteria for benefit setting as indicated in Step b (viii) (1 month after medium term measure date). | 30 April 2018 |
| | • Delivery of remediation identified in Step b (x). | 30 April 2020 |
| | • Initial completion report. | 31 October 2021 |
| ii. | Review the risk assessment for Z2058H52 as required by Regulation 28(4) and subsequently submit a revised regulation 29 report. | 31 July 2020 |
| iii. | Submit a satisfactory completion report. | 31 October 2022 |

Failure by the Company to comply with this Notice may result in enforcement proceedings under section 18 of the Act.

Signed by authority of the Welsh Ministers,



Milo Purcell

Deputy Chief Inspector

DWI ref DWR3534

28 March 2017

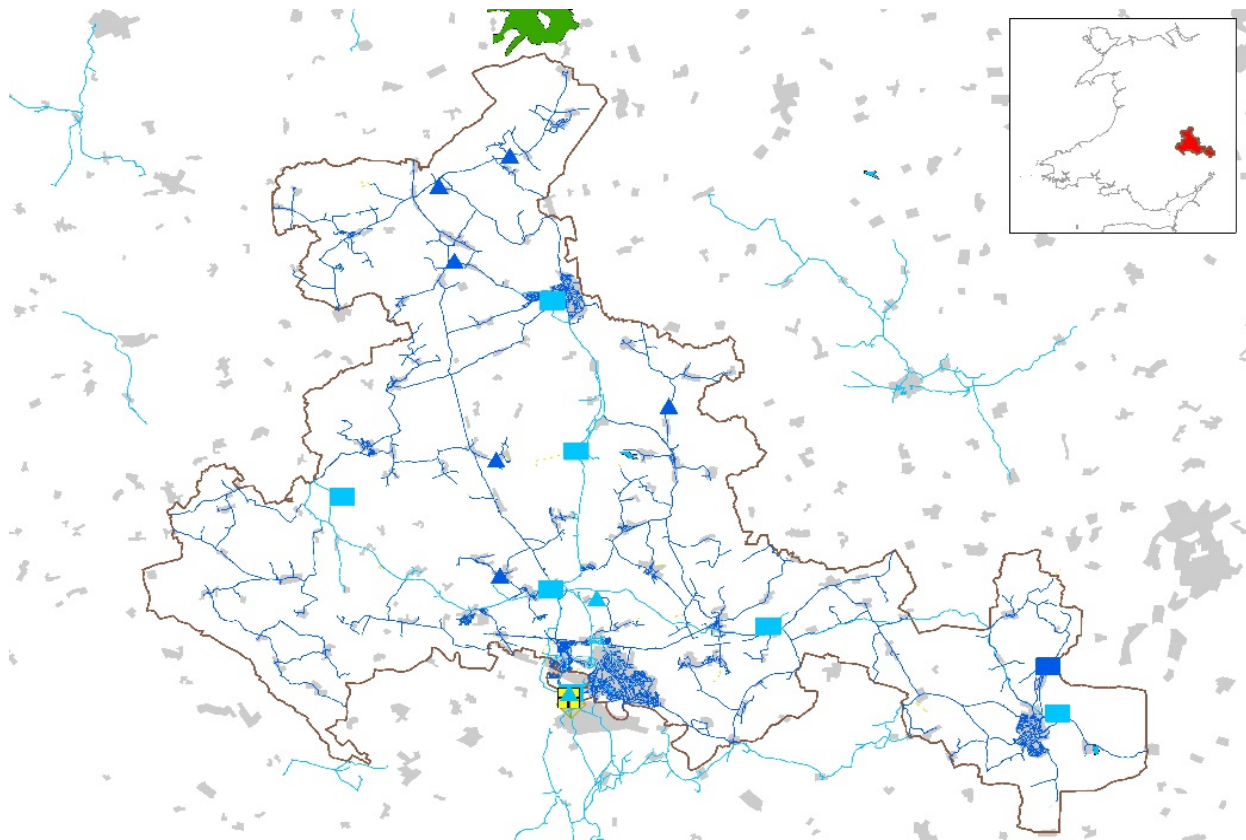
Hereford North Quay Zonal Programme Confirmation

Purpose

This paper provides confirmation of the Hereford North delivery programme in line with DWI reporting requirements for legal Notice DWR 3534 for WQZ Z2058H52. This programme of work is to be delivered by 31st March 2020.

Background

The H52 Hereford North Water Quality Zone (WQZ) falls within Herefordshire Borough Council borough on the Welsh borders where the primary urban centres are Hereford, Leominster and Ledbury. Hereford North WQZ is mainly supplied by Broomy Hill Water Treatment Works, which abstracts water from the River Wye. The zone contains approximately 40,500 properties and is made up of 38 District Metered Zones and 87 Leakage Controlled Areas (LCA) with approximately 914km of mains of which 34% are ferrous mains.



Programme of Work

Of the 57 proposed schemes highlighted in the Milestone one report submitted in July 2016, 7 schemes identified in the Zonal study met the benchmark cost benefit standard set to compare investment schemes across the zonal study programme. 6 of the schemes have the customer acceptability measure of success.

Table 1.
Original proposed scheme lengths

<u>Scheme Driver</u>	<u>No of schemes</u>	<u>MOS</u>	<u>Renewal km</u>	<u>Cleansing km</u>	<u>Abandonment km</u>
<u>Programme of Works</u>					
Safety and Acceptability of Water	6	Customer Acceptability	20.4km	29.5km	3.2Km

Safety and Acceptability

Programme of Work – Scope and Method changes.

Following site investigation and mains condition grading, it has been confirmed that **29.5km** will be cleansing schemes, **20.4km** will be replaced and **3.2km** will be abandoned. Mains replacement will be the preferred option if it is identified that the unlined ferrous mains have deteriorated significantly preventing effective cleansing.

So why is this the right level of investment?

By targeting and prioritising effectively the 6 customer acceptability schemes will meet 54% of the forecast customer acceptability improvements predicted across the entire water quality zone. To allow for potential flow changes within the zone, modelling accuracy, average rate of rise and the normalisation of incidents we have applied a confidence factor of 75% to our forecast improvements. The adjustments have been made to the figures and are displayed in the table below. As the zonal study process continues to mature, we will carry out sensitivity analysis and adjust the forecasts of future studies accordingly.

Benefit Criteria

Measure of Success	Units	Performance	Predicted Post Investment Performance	Improvement
Customer Acceptability* (at Zonal Level)	Contacts/1000 pop/yr.	1.74	1.55	11.16%

Customer Acceptability

Customer Acceptability is measured by contacts per 1000 population across all customer quality categories.

*Number based on customer contact data as submitted to DWI for the period 2013 to 2015 inclusive.

27 March 2019
Our Ref: DWR3534 PR19

Sharon Evans
Head of Water Quality
Dŵr Cymru Welsh Water
Glaslyn
Cleppa Park
Newport
NP10 8UG

Dear Sharon,

Dŵr Cymru Welsh Water – Notice DWR3534

This letter is to confirm receipt of your milestone report - **Hereford North Quay Zonal Programme Confirmation** and that the content of this satisfies sections 2(b) viii and 2(b)ix of Notice DWR 3534.

The report commits the Company to the delivering the following outputs and improvement in service to customers.

<u>Scheme Driver</u>	<u>No of schemes</u>	<u>MOS</u>	<u>Renewal km</u>	<u>Cleansing km</u>	<u>Abandonment km</u>
<u>Programme of Works</u>					
Safety and Acceptability of Water	6	Customer Acceptability	20.4km	29.5km	3.2Km

Measure of Success	Units	Performance	Predicted Post Investment Performance	Improvement
Customer Acceptability* (at Zonal Level)	Contacts/1000 pop/yr.	1.74	1.55	11.16%

The Company is now required to deliver this programme of works by the date shown in Section 2(b)x and in order to revoke this notice the Company is required to submit a satisfactory completion report by October 2021 which

demonstrates the agreed demonstration of benefit to consumers and improvements to water quality.

This letter does not supersede the requirements of the Notice DWR3534 and any changes to the Notice in term of dates or measures will require an application to the Inspectorate and follow the current change control process.

Signed by authority of the Welsh Ministers,

Yours sincerely

A handwritten signature in black ink, appearing to read 'S Vince'.

Mrs Samantha Vince
Principal Inspector
(Enforcement and Risk assessment)

Appendix 3 - Issues raised in Ofwat's IAP feedback

1. Why our Section 19 investment programme shows that we are not now 'catching up'

Although we are one of the worst performers in the industry for acceptability of water we have relatively few regulatory iron and manganese failures (14 Iron and 4 Manganese in 2017).

Following privatisation of the water industry in the 1990s, under Section 19 of the Water Industry Act 1991, we completed a significant statutory mains renewal programme to reduce the number of iron failures. Mains replacement was focused on areas where unlined ferrous mains were attributed as the cause of iron failures. This mains replacement programme together with improved manganese removal at water treatment works has ensured that failures for iron and manganese in the network are infrequent.

To support our programme for the AMP3/4 period we carried out water quality surveys on a Water Quality Zone basis to identify where water quality and customer acceptability deficiencies existed. The results of these surveys formed the basis of a submission to DWI, which was approved in March 1999 and covered the period spanning 10 years to March 2010. The subsequent letter of support from the DWI for our proposals defined the length of main to be rehabilitated, on a scheme by scheme basis, in a priority order, divided into two year "Milestone" periods commencing in April 2000.

Following this, several thousand tap samples were undertaken alongside customer opinion surveys and customer complaint analysis to determine a robust programme of works that provided maximum benefit to our customers while working within the parameters of Ofwat determinations and DWI notices.

During delivery of the programme the following cost pressures arose:

- Cost pressures from geographical programme deviation, eg more urban vs rural working.
- Cost pressures from original 50/50 split of reline/renew – Mains identified were not suitable to take relining activity, resulting in greater renewal.

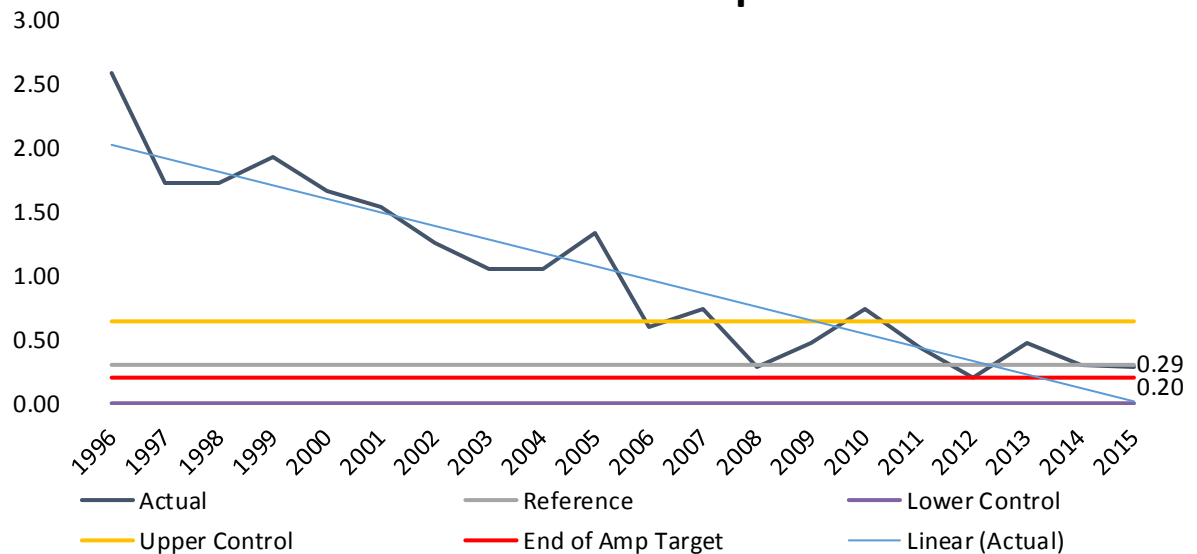
This led to the need later in the programme to select schemes that helped deliver the outputs required in the DWI notices within the approved budget.

To ensure that we realised the benefits of improved water quality compliance while working within these pressures and constraints we:

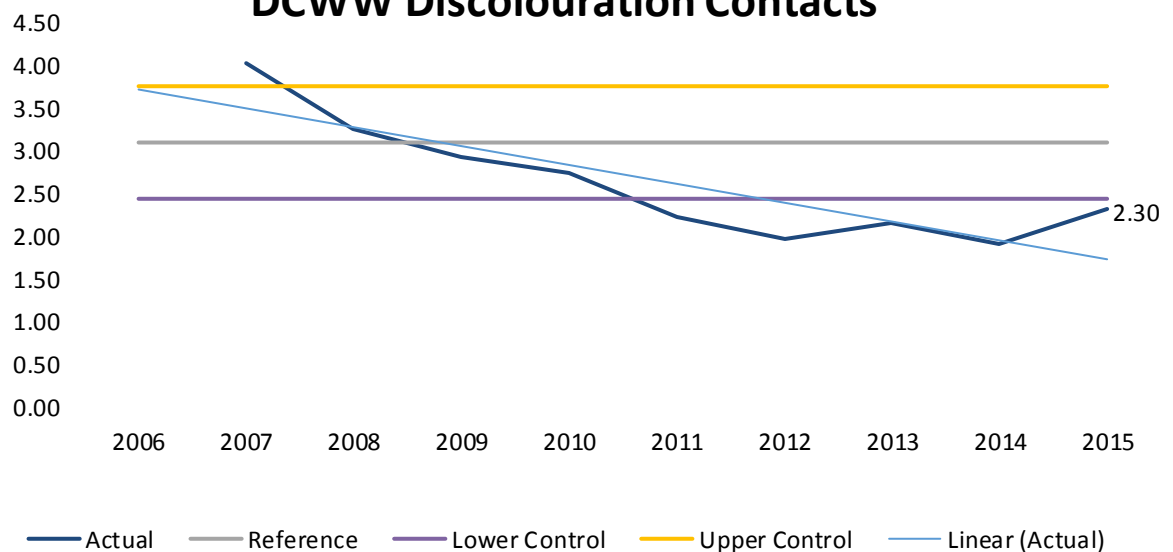
- Strategically targeted our sampling programmes
- Identified service degrading assets for intervention
- Relined 1,700km of our network and replaced 2,400km of our network

This programme successfully reduced customer complaints at a rapid rate. However, because of the budgetary constraints, it was predominantly smaller diameter pipework within the water supply zone that was replaced. Whilst we significantly increased performance for water quality compliance and significantly reduced the volume of customer complaints, this approach did leave behind a legacy of high cost, low output predominately unlined ferrous pipes that continued to deteriorate.

DCWW Iron Non-Compliance



DCWW Discolouration Contacts



It can be seen in the graphs above that our performance in iron compliance moved within the tramlines agreed in the Asset Serviceability measure and for discolouration moved below the performance tramlines.

Overall, our Section 19 programme was effective in achieving its stated goals of water quality compliance and reducing complaints. It also resulted in the replacement of a similar proportion of our total network compared to other companies. Indeed, the table below shows that only two companies replaced a significantly higher proportion of their network than we did under Section 19.

Water Company	Completion Date	Section 19 Undertakings	Total Potable Mains (km)(2018)	% Renewed in Section 19
South West	Dec-10	5,949	15,300	38.88
Northumbrian	Dec-10	4,632	17,325	26.74
United Utilities	Dec-10	7,689	42,812	17.96
Welsh Water	Dec-10	4,786	27,564	17.36
Yorkshire	Dec-10	5,386	31,062	17.34
South East	Dec-05	903	14,652	6.16
Wessex	Dec-05	643	11,895	5.41
Severn Trent	Jan-04	1,896	46,609	4.07
Anglian	Sep-02	916	38,325	2.39
Thames	Jun-02	592	31,374	1.89

It is therefore not accurate to say that the investment now proposed represents an attempt to catch up with rest of the industry. However, two companies, one being South West, replaced a significantly higher proportion of their network under Section 19. Our programme was more focused on our worst affected customers, thereby delivering good value for money; to have replaced a similar proportion of our network as South West Water would have cost approximately a further £500m to £1bn at today's prices.

2. Why the comparison with South West is not valid

For the above reason, principally, we do not accept that our costs should be compared to South West's (SWW) in terms of our mains renewal programme in AMP7.

In preparing our responses, we took the opportunity to meet with SWW to discuss their and our experiences and strategies. In comparing it is clear that there are a number of similarities in risk factors and approach between the two companies but also some important differences.

Similarities

- Manganese in impounding reservoir sources that contribute to discolouration in distribution system.
- Source to tap approach to resolving problems with reduction of manganese at water treatment works a key factor. Then targeting improvements in worst performing zones.
- SWW are implementing a programme of conditioning Trunk mains. We have also done this on a number of troublesome trunk main systems, in North, South West and South East Wales.

- SWW have agreed improvement notices with DWI, and agree annual targets for zones. We have also agreed notices with performance targets for each zone.

Differences

- As noted above, SWW had a significantly bigger investment programme, proportionally, than any of the other WASCs in Section 19 with 39% of their network renewed or relined (compared to 26% for Northumbrian and 17%-18% for ourselves, Yorkshire and United Utilities). This work included significant lengths of trunk mains being relined. The experience in many parts of the UK is that these linings, particularly PU based liners, if not applied correctly, can begin to fail in a relatively short period, leading to further costs in the future. This higher percentage of new or relined mains means that SWW are now at a position where flushing is an appropriate response to manage performance whereas with more unlined iron mains we need to replace problem pipes before flushing will be a sustainable approach.
- While both companies have issues with oversized trunk mains, in SWW the mains are sized for summer tourist demand and are therefore only oversized during the winter period. For us the oversizing is related to industrial decline meaning self-cleaning velocities are never reached and mains require replacement.
- We understand that South West Water will incorporate Bournemouth Water's contacts number in AMP7. As BW have historically had very low contacts rates this will have a positive impact on the overall number reported on a standardised basis.

In summary SWW had a more widespread and costly investment under Section 19, benefits from self cleansing trunk main velocities during summer months and will incorporate 400,000 customers with historically low customer contacts during AMP 7. We will continue to share best practice with SWW following our visit but believe there are significant enough differences in our positions that our investment plans should not be based solely on their approach.

3. Why our trunk mains cannot be flushed

An independent hydraulic assessment has been made of the trunk mains schemes identified within the AMP 7 programme to see if flushing would be a suitable method of reducing acceptability contacts. In each case the flows required for effective cleansing are not practical to achieve. A table of this assessment is included below. These trunk mains schemes are identified within the zonal studies as root causes of the discolouration experienced within zones and as such cannot be left out of the investment plan. To complete any downstream work without addressing the trunk main issues would lead to repeat work downstream. We therefore need to include these schemes for replacement.

Scheme Name	Pipe Length (m)	Pipe Volume (m3)	Flushing Volume (m3)	Estimated Flow rate to clean largest main (l/s)		Estimated Headloss (m)		Flushing (Y/N)	Comments
				SG1.5	SG3	SG1.5	SG3		
BAGLAN SRV OUTLET - Mains Cleaning	1811	208.5	417.0	216.6	453.4	26.1	102.5	N	The model predicts that it would be possible to draw 216 l/s through this. In reality drawing a flow this large through a hydrant would not be possible. The estimated headloss would be too great to bear without customer impact
COURT COLMAN SRV (Nr Bridgend) twin 14" outlets	3000	298.6	597.2	162.9	339.2	37.6	146.3	N	The model predicts that when attempting to draw 163 l/s through the 14" CI main, negative pressures will occur.
Red Cow SRV and TM - Mains Cleaning	1650	120.4	240.8	111.4	230.3	22.2	85.4	N	The minimum modelled pressure within LCA 262092D1 is currently 10.2m indicating that this LCA currently experiences low pressures. The predicted drop in pressure at the north end of this trunk main when drawing a flushing flow able to clean particles with a specific gravity of 1.5 is 22.2m which indicates that parts of LCA 262092D1 would lose supply if an attempt was made to flush this main
Pont Newydd - Mains Cleaning	22006	7684.5	15369.1	779.6	1670.2	2138.8	8768.9	N	To achieve a flushable to clear particles with a specific gravity of 1.5, the predicted headloss through the network would be over 100m which rules out flushing as a viable cleansing technique.
Pontithel - Hay	2499	81.0	162.1	41.3	83.9	31.4	116.6	N	It would be possible to flush this main during peak hour demand as this would reduce the amount of water needing to be drawn out of the hydrant down to 27.3 l/s but this would increase the risk of dirty water being drawn into the downstream network. The current peak velocity through this main is 0.42 m/s indicating that this main does not currently experience self cleansing velocities.
Llyswneto Llanigon & Genfordd	7724	292.8	585.6	71.3	146.2	23759.1	89935.2	N	To achieve a flushable to clear particles with a specific gravity of 1.5, the predicted headloss through the network would be over 100m which rules out flushing as a viable cleansing technique.
WILLOWTO WN - MAINS CLEANING	1660	62.7	125.4	192.3	401.7	1226.7	4799.7	N	To achieve a flushable to clear particles with a specific gravity of 1.5, the predicted headloss through the network would be over 100m which rules out flushing as a viable cleansing technique.

TARFARNA UBACH 450 TO PEN Y FAN - MAINS CLEANING	13270	1434.9	2869.9	216.6	453.4	3346.2	13144. 8	N	To achieve a flushable to clear particles with a specific gravity of 1.5, the predicted headloss through the network would be over 100m which rules out flushing as a viable cleansing technique.
Sub Supply System Boundary - Mains Cleaning	2924	120.4	240.8	71.3	146.2	180.7	684.1	N	To achieve a flushable to clear particles with a specific gravity of 1.5, the predicted headloss through the network would be over 100m which rules out flushing as a viable cleansing technique.
RhymneyH ighLevel - Mains Cleaning	12004	1192.2	2384.3	162.4	338.2	150.6	585.8	N	To achieve a flushable to clear particles with a specific gravity of 1.5, the predicted headloss through the network would be over 100m which rules out flushing as a viable cleansing technique.

Maintaining customer supply while working on trunk mains

Since many of our trunk mains provide a 'point to point' single source of supply, the costs of replacement are high due to the need to maintain supplies while the work is undertaken. In many cases this means that laying a new main is no more expensive than the enabling works required when cleansing or slip-lining a main.