



GROWING ECONOMY

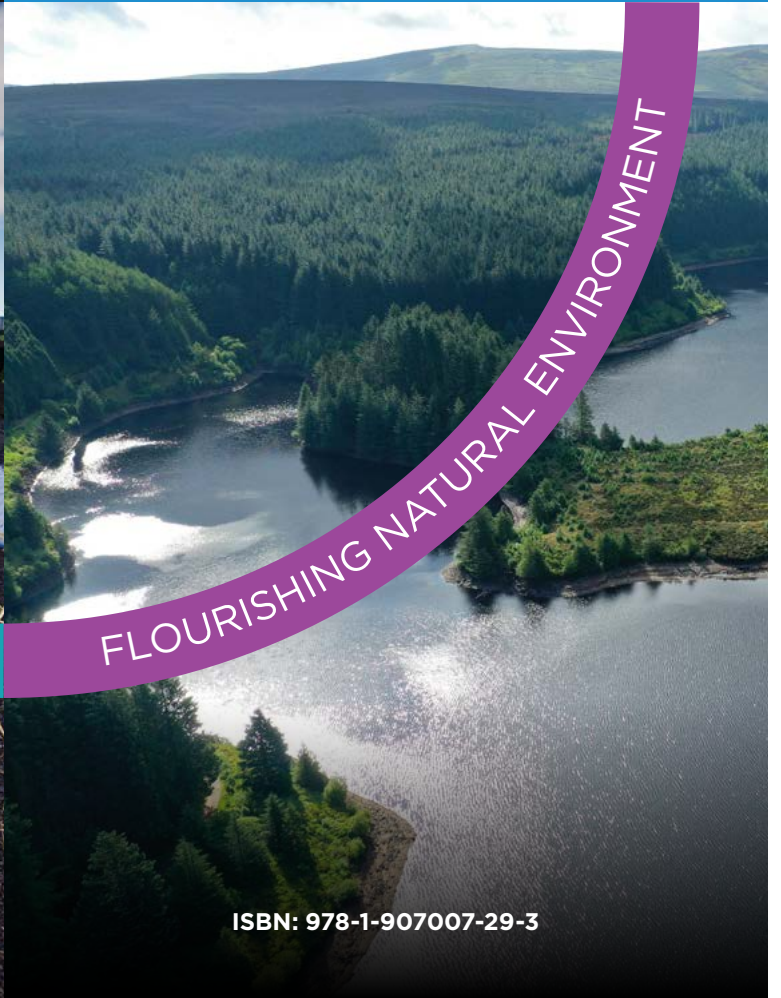


Delivering what matters

# DRINKING WATER QUALITY ANNUAL REPORT 2022



HEALTHY AND THRIVING POPULATION



FLOURISHING NATURAL ENVIRONMENT

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# Introduction and Foreword



I am pleased to present Northern Ireland Water's (NI Water) Annual Drinking Water Quality report covering the calendar year 2022, and I am delighted to report that we have continued to supply a very high quality of drinking water to our customers across all of Northern Ireland.

NI Water's core function is to produce high quality drinking water in a cost-effective manner to meet the needs of all our customers, both existing and future. By doing this we contribute to the health and wellbeing of the community we serve and the needs of our commercial customers in a sustainable way.

Our overall drinking water quality compliance in 2022 was 99.91%, above the target of 99.83%. As we came out of the social distancing restrictions imposed on us by the COVID-19 pandemic including the surge in cases caused by the Omicron variant, we were able to resume sampling at public buildings from February 2022, and more fully resume sampling at customer taps from March 2022. At all times our social distancing guidelines for sampling were as agreed with the Drinking Water Inspectorate.

NI Water is one of the largest landowners in Northern Ireland and our largest land holdings tend to be in upper areas of drinking water catchments where peatbogs and heathland dominate. We have been working closely with partners in our drinking water catchments to improve water quality, enhance biodiversity and sequester carbon. We are supporting the implementation of the High Mourne Management Plan to manage the Mourne landholdings sustainably, so that the public can enjoy recreation for years to come, as well as protecting this vital water source for NI Water. We continue to liaise with The Woodland Trust through riparian planting in some of our river catchments to stabilise the riverbanks and prevent erosion from affecting raw water quality.

Our cross-border partnerships also play an important role in catchment management. The €4.9m Source to Tap INTERREG VA project in the cross-border Derg and Erne catchments finished during 2022/23. Every £1 invested through the project's land incentive scheme is expected to deliver £3.36 worth of future benefits through reduced water treatment costs and improved ecosystems. We are working on an EU submission for Peace Plus funding known as 'The IDEALS' Project' to build on the success of the Source to Tap project.

Our capital investment programme to maintain and safeguard water quality for the reporting period is set out using the Northern Ireland council areas in Appendix 3.

As part of our reporting requirements, this report also incorporates data to meet the requirements of the Water Supply (Water Fittings) Regulations (NI) 2009.

We continue to exceed the targets placed upon us by our regulators to comply with water quality standards and will continue to improve the service to all our customers in the future despite working in challenging times.

**Sara Venning**  
Chief Executive Officer

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# Drinking Water Quality

## Water Quality Standards

During 2022, Drinking Water Quality in Northern Ireland was assessed against standards set in the Water Supply (Water Quality) Regulations (Northern Ireland) 2017, herein after referred to as “the Regulations”. The regulations incorporate the requirements of the European Commission’s Drinking Water Directive 98/83/EC (the “Directive”) relating to the quality of water intended for human consumption and, for certain parameters, more stringent UK national standards.

The Regulations set out the requirements to be met by NI Water when supplying water for domestic or food production purposes and include:-

- water quality standards for wholesomeness
- sampling locations for monitoring purposes
- minimum requirements for the number, frequency, and types of water samples to be taken at sampling locations
- water sample collection and testing regimes
- maintaining records of water sample results
- the provision and publication of information

NI Water assesses water quality standards against the parameters listed in Appendix 1. The standards in the Regulations are normally expressed as “Prescribed Concentrations or Values” (PCV) and are generally specified as maximum, minimum, percentile or average concentrations for a particular substance. Standards are set to ensure that water is safe to drink and aesthetically acceptable.

The Regulations set demanding standards for the quality of drinking water, but contraventions of these standards do not necessarily mean the water represents any public health risk. These contraventions are reported to the Drinking Water Inspectorate, investigated by NI Water, and prompt remedial action taken where appropriate.

NI Water has a monitoring programme in place that covers raw waters, water at various treatment stages, drinking water in distribution and at the customer tap. NI Water liaises with its customers on a wide variety of issues. Where there is an exceedance of a regulatory parameter PCV, investigations and remedial work are carried out to ensure that drinking water is regulatory compliant. Where the monitoring programme highlights a problem with the customer’s plumbing, NI Water informs the customer, the local Environmental Health Officer, and the Drinking Water Inspectorate.

To assist in understanding the contents of this report, a glossary of technical terms is provided (Appendix 6).

## Monitoring Drinking Water Quality

The Regulations necessitate a thorough and extensive water-sampling programme to be undertaken, to monitor water quality throughout the supply and distribution systems. The sampling locations and frequencies for the monitoring of drinking water quality are specified in the Regulations. These monitoring arrangements are audited by the Drinking Water Inspectorate (DWI). The mandatory sampling programme requires water samples to be collected regularly at water treatment works, at service reservoirs and water towers used to store treated water, and at customer taps in the water supply zones. In addition to the regulatory sampling frequency requirement, NI Water also carries out operational sampling and analyses to monitor and optimise the processes and quality of our drinking water supplies.

Under the Regulations, samples to be analysed for parameters that do not change in the supply water main, may be collected from Authorised Supply Points. These samples are collected from the final distribution point of the Water Treatment Works, and are considered under the Regulations to be equivalent to samples collected from the customer tap. All samples are carefully collected, handled, and transported to ensure that they accurately represent the water quality that customers receive. NI Water uses skilled and experienced sampling staff for the collection and delivery of the regulatory samples to the laboratories. All sampling staff wear uniforms and carry identity cards when they call upon customers to take a sample.

Samples collected from customer taps are taken at random addresses in each water supply zone. A water supply zone is a designated area with a population of no more than 100,000 supplied with water from one water treatment works or

blended water from several works. The number and boundaries of water supply zones are subject to change according to operational requirements as supply sources to areas are adjusted to meet demand and infrastructure developments. On this basis, 55 water supply zones were monitored during the period of this report.

The parameters for which samples are tested include-

- microbiological, e.g. Coliform bacteria
- physical, e.g. pH (Hydrogen ion)
- chemical, e.g. Iron, Manganese, Lead and Nitrate
- aesthetic, e.g. Colour

Compliance with the drinking water standards is determined by comparing the results of laboratory analysis of water samples with the relevant Prescribed Concentrations or Values (PCV). Where monitoring indicates that a standard has not been met, appropriate immediate investigation and remedial action is undertaken to ensure that the water supply does not present any public health risk. Sampling programmes are adjusted, and increased testing may be scheduled in the water supply zone for the parameter involved. NI Water will liaise at all times with the DWI and the Public Health Agency to ensure customer safety.

NI Water reports its water quality compliance levels as Overall Percentage Compliance. This assesses all regulatory consented parameters at water treatment works, service reservoirs, as well as customer tap. This is a holistic approach and is supported by the Drinking Water Inspectorate and the Utility Regulator.

## Drinking Water Quality Summary - Year on Year

Compliance assessed against the “Water Supply (Water Quality) Regulations (Northern Ireland) 2017”

Compliance Measure	2017	2018	2019	2020	2021	2022
% Overall compliance with drinking water regulations	99.88%	99.90%	99.90%	99.94%	99.88%	99.91%
% Compliance at customer tap (including supply points)	99.81%	99.83%	99.84%	99.91%	99.82%	99.88%
% Iron compliance at customer tap	98.85%	98.94%	98.89%	99.56%	99.35%	99.15%
% Service Reservoirs with coliforms in >5% samples	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

# Protecting Our Customers

## Drinking Water and Health

The safety of drinking water is paramount to public health. It is a tribute to the skills and expertise of colleagues working for drinking water providers, regulators, health authorities, and local authorities that the safety of drinking water in Northern Ireland is something that the public is able to take for granted.

The Drinking Water and Health Liaison Group (DW&HLG) is a multi-agency group that considers public health issues associated with the drinking water supply. The Group, which is unique in the UK context, draws its membership from the main stakeholder organisations including the Department of Health, the Public Health Agency, the Drinking Water Inspectorate, the Northern Ireland Public Health Laboratory, the Environmental Health Northern Ireland, and NI Water.

The Group produced a comprehensive guidance document on “Drinking Water and Health” aimed at professionals from a variety of backgrounds who share an interest and involvement in the safety of drinking water. The purpose of this joint guidance is to set out the roles and responsibilities of the key players, to describe the wider context to the provision of safe drinking water, to detail the arrangements and protocols in place to monitor compliance with standards and to respond to an emergency or incident situation.

This guidance is a “living document” that is regularly reviewed and updated.

The guidance document can be found at: <https://www.niwater.com/drinking-water-guidance/>

## Lead Pipework Replacement Programme

The NI Water asset strategy sets out NI Water’s approach to the management of lead in drinking water.

The strategy details how NI Water will work to reduce the likelihood of lead failures at customers’ taps whilst working within its current remit. The overall approach will be a combination of two strands, as summarised below:-

- Removal of NI Water owned lead assets from the water distribution system
- Encourage the removal of customer owned lead assets such as their service pipes

NI Water has been carrying out lead pipe replacements for a number of years under the following programmes of work by:-

- Proactively replacing lead pipes during mains replacement and when water quality testing indicates lead pipe is present
- Proactively replacing lead communications pipes only, where the water mains is in good condition, and is not being replaced
- Proactively replacing lead communications pipes when a customer requests NI Water to replace lead pipework to their property when they have replaced lead pipe internally in their property

In the PC21 price control period so far, NI Water has replaced nearly 4,000 lead service pipes and is meeting its target for the period.

These programmes of replacement have been developed to ensure that NI Water prioritises and targets areas with high numbers of lead pipes and poor compliance with the lead standard.

# Source to tap

## Drinking Water Safety Plans

A Drinking Water Safety Plan (DWSP) is the most effective way of ensuring that a water supply is safe for human consumption and that it meets the health-based standards and other regulatory requirements. It is based on a comprehensive risk assessment and risk management approach to all the steps in a water supply chain from catchment to customer.

The primary objectives of a DWSP in protecting human health and ensuring good water supply practice are the minimisation of contamination of source waters and effective treatment using appropriate processes. DWSPs are used to map water supply systems, identify the hazards at each stage of the system from catchment, through treatment and the distribution system, to the customer's tap, and to assess the risks that these hazards pose.

The Water Industry has adopted the DWSP approach to risk management from the raw water source, through water treatment, distribution

and to our customer's taps. NI Water has put in place systems to identify hazards, assess risks, and implement mitigation measures, which could potentially threaten each stage of the water supply process. NI Water works with the Northern Ireland Environment Agency (NIEA), the Drinking Water Inspectorate (DWI), Forestry Service, and other Non-Government Organisations to protect the raw water sources from contamination.

The outputs of these plans - "The Drinking Water Safety Plans" themselves continue to be embedded into company policies and procedures and are reviewed using a risk-based approach each year. In the long term, DWSPs will lead to improved security of supply, a reduction in regulatory failures, incidents, and customer complaints and hence increased customer confidence.

NI Water uses the DWSP risk assessments to inform the investment strategy for drinking water.



Sustainable catchment management is about improving the quality of the raw water in our drinking water catchments using nature-based solutions prior to treatment, so that we can save resources, protect habitats, and extend the life of our assets.

Our team work to develop and implement on-the-ground catchment interventions with the help of a wide range of partners, from RSPB Northern Ireland to the National Trust, to reduce run off and pollution getting to the waterways we use to provide our customers with drinking water.

### Valuing our peatlands

A number of our upland reservoirs are on areas of peat and also contain or are adjacent to commercial conifer plantations. The water in these reservoirs is often at risk of colour and turbidity fluctuations following tree felling and forestry operations.

Over the past decade, NI Water have carried out a number of novel peatland restoration projects, at Garron Plateau in conjunction with the RSPB Northern Ireland, and taking learning from the INTERREG-funded Source to Tap project, at Lough Bradan. Our team are now progressing with additional phases in restoration at both these sites. We are working with the RSPBNI at Garron to develop a further restoration plan there to continue to reduce run-off and erosion from the bog into the surrounding watercourses, and we are furthering our rewetting of the bog at Lough Bradan in areas which had previously been under forestry.



*Photo courtesy of Simon Gray, Ulster Wildlife - showing peatland rewetting with coir rolls on Slieve Binnian, Mourne Mountains.*

### Riparian Planting

The SCaMP NI Team have continued to work with The Woodland Trust and Loughs Agency on a number of different planting projects throughout NI. Woodland Trust continued to utilise the tree-guards we purchased on planting areas along the rivers Faughan and Burntollet in Co. Londonderry. This riparian planting continues to protect the Faughan riverbank which is important in terms of drinking water – it supplies Carmoney Water Treatment Works with water to treat for much of Derry/Londonderry and the surrounding area. Riparian tree planting not only protects our raw water quality but also provides a home for wildlife, shelter for spawning fish and helps reduce the effect of climate change by capturing carbon, stabilising the banks and slowing river flow.

During 2022, the SCaMP team also worked as part of NI Water's 'Regreening' initiative and along with the Woodland Trust and DAERA Forest Service, helped to plan extensive planting to be carried out at Stoneyford in Co. Antrim and Annalong in Co. Down.



Find out more about Garron at <https://www.rspb.org.uk/about-the-rspb/at-home-and-abroad/northern-ireland/policyinnorthernireland/valuing-our-peatlands/>

Our team are continuing to work with other key partners such as DAERA Forest Service, Mourne Heritage Trust and Ulster Wildlife to identify further areas appropriate for peatland restoration in our land holding. Over the next number of years, we hope to increase the areas we can call 'bogs' around our drinking water catchments, to improve raw water quality but also to help achieve our corporate net zero targets, contribute to the national net zero targets and increase biodiversity on our most valuable habitats. It is planned to get future peatland restoration projects validated, where possible, under the peatland carbon code in order to enable NI Water to benefit from carbon credits for carbon offsetting or insetting.



These two projects will not only contribute to our Regreening Initiative and 1 Million Trees ambition, but will provide a new habitat for animals and birds and can be validated under The Woodland Code as a carbon inset or offset.

The native deciduous trees which will be planted at Annalong are chosen and planted for us by The Woodland Trust. They chose appropriate trees for the surrounding environment. Trees planted here may also reduce the risk of wildfires spreading through creating pockets of humidity.

NI Water has recently published its Climate Change Strategy, which can be found at <https://www.niwater.com/climatechange/strategy/>

## Pesticides

Pesticides are essential for weed control and land management in the agricultural and amenity sectors. However, some grassland herbicides like MCPA (which is used mostly to control rushes) make it into watercourses that are abstracted for drinking water in Northern Ireland and are difficult and expensive to remove during treatment. An extra water treatment mechanism is required to remove MCPA, increasing the cost in maintaining the necessary drinking water quality standards at the treatment works. Pesticides can often make their way into watercourses if they are washed off the land during wet weather conditions, after a spillage or if they are applied incorrectly.

The SCaMP team are members of the Water Catchment Partnership, a multi-agency group who work to reduce pesticides in water through outreach and education.

In order to reinforce best practice use of pesticides in the agricultural sector, the SCaMP team have attended a number of farm Business Development Groups with farmers across the country as well as working alongside CAFRE in running rush control events for farmers. These events are a way for us to meet pesticide users and discuss how we can reduce run-off and pesticide wastage together.



*Photo showing field being sprayed.*

The team are also currently running comprehensive passive sampling regimes and a modelling programme which aim to understand pesticides loading in a number of rivers and lakes which provide water to our treatment works. This work is carried out between March and October and will provide a better understanding of herbicide hotspots and where we can concentrate our engagement work.

## The Mournes

NI Water owns over 3,000 hectares of land in the Mourne Mountains, where we abstract water from Silent Valley, Spelga and Fofanny reservoirs to provide drinking water for nearly one fifth of the population of Northern Ireland.

We encounter many challenges and pressures in these catchment areas from peatland erosion, path maintenance, wildfires, recreation, and grazing pressures. Working together with a large range of partners, our team help to manage these treats and pressures to our mutual benefit and for the benefit of the general public, local people, the local economy, and our tenant graziers.

We continue to support the Mourne Heritage Trust in their extensive path maintenance programme on our and neighbouring land, which helps reduce erosion of peat and soil into our reservoirs. We work together with them to identify and eradicate invasive species. We have also contributed to their completion of the Eastern Mournes SAC Conservation Action Plan which sets out actions for stakeholders to protect and enhance the mosaic of habitats which again can contribute to cleaner raw water.

We work with the National Trust as part of the Forever Mournes partnership to contribute to the Mournes Community Renewal Through Nature Project which has produced several scoping studies and pieces of research to inform development of more comprehensive and coherent management approaches in the area, and along with others have engaged with the Department of Finance under the Innovation Lab to seek long-term strategy direction and protection for the Mournes as a whole.



Photo showing Ben Crom Mountain and dam.

We have developed the NI Water High Mourne Management Plan (HMMP) which aims to manage our land long term in a better way for all of us to continue providing wholesome drinking water, while protecting the environment, meeting the needs of our grazing tenants and our visitors, upholding and improving our designated lands and preventing wildfires. This is a “landscape scale” collaborative approach which includes at its head, protection of water quality.

The first and most important aspect of the HMMP was to put in place a better and more sustainable grazing regime within the Silent Valley area. Working together with the High Mourne Working Group partners (NIEA, Mourne Heritage Trust, National Trust, and Woodland Trust), a new licence format and grazing arrangement was developed, designating the area and Common grazing area. A grazing tender has been awarded to a consortium of graziers who were able to demonstrate excellent environmental stewardship and understanding of catchment management. Optimised grazing in this delicate habitat will help protect and enhance habitats, reduce erosion, and reduce wildfire risks.

**Wildfire Control**

With our changing climate and more unpredictable weather patterns in recent years, wildfires have become more of a problem than ever before. They can of course result in loss of life, but also are devastating to sensitive habitats, can destroy livelihoods, property and take the NI Fire and Rescue Service away from other fire incidents which they should be attending.

Wildfires can also result in a deterioration in raw water quality and significantly increased treatment costs.



Photo courtesy of the Mourne Heritage Trust – showing the aftermath of wildfire on Bann’s Road, Mourne Mountains, 2020.

NI Water work with a number of stakeholders particularly in our Mourne catchments to try to drive down risk of wildfires, and to relay a joint message on how we can all help prevent wildfires.

NI Water have been working with the Northern Ireland Fire and Rescue Service (NIFRS), the Mourne Heritage Trust, and DAERA-NIEA for over 10 years in the Mourne Wildfire Group (MWFG) under the Eastern Mourne Wildfire Project, in order to protect the water supply and preserve the precious Mourne landscape.

**Biodiversity**

NI Water are proud partners of the All-Ireland Pollinator Plan. In 2020 we made a commitment to do what we can as a major landowner in Northern Ireland to protect pollinators (including bees) in areas on our landholding.

We own a great number of outdoor assets which already act as great homes and food larders for pollinators. In 2022 with help of some brilliant NI Water staff volunteers, we were able to map 26 of our sites as pollinator areas. We hope to continue this work in 2023 and beyond, and to work on developing a ‘low mow’ or ‘no mow’ policy in some areas if possible.



Picture courtesy of the <https://pollinators.biodiversityireland.ie/>

## INTERREG VA Source to Tap Project

The INTERREG VA Source to Tap project ran from 2017 through to the end of September 2022 and culminated in a closing conference at the Lough Erne resort in County Fermanagh in May 2022. The conference presented the highlights of the work by the partnership over five and a half years.

The €4.9m project was funded under the INTERREG VA Environment Programme with match funding from DAERA in Northern Ireland and the Department of Housing, Local Government and Heritage (DHLGH) in Ireland and managed by the Special EU Programmes Body (SEUPB). The partners included Irish Water, The Rivers Trust, Ulster University, Agri Food and Bioscience Institute, and East Border Region. The partnership project piloted a range of sustainable cost-effective measures to reduce pollution and contribute to improvements in cross border raw water quality in the River Erne and River Derg catchment areas which provide water that serves parts of counties Fermanagh, Tyrone, Donegal, Cavan, Leitrim, and Longford.



L to R: DAERA Minister Poots, Dymphna Gallagher, NI Water Chairman Len O'Hagan, Diane Foster, DHLGH Minister Burke.

The key outcomes of the project were as follows:

**Love Your Water** - Forty-three volunteers in the Erne and Derg catchment were trained to become citizen scientists, providing them with new skills and new equipment. As skilled guardians, these volunteers will play a vital role in protecting these rivers after the project ends.

**Learning for Water** - the project educated 1,947 children on where their water comes from and the importance of good, clean, safe drinking water; ensuring that they help to protect the water we all rely on to thrive.

**Farming For Water** - the project helped 118 farming families make their farm business', water friendly and provided them with practical measures on their farms to make land management more sustainable and help protect water quality. These measures included:

- topping and weed wiping of approximately 146 acres on 73 farms instead of using MCPA,
- 76 pesticide storage units provided to farmers to safely store pesticides and other chemicals on farms,

- provision of nearly 56km of livestock exclusion fencing on 79 farms to keep livestock out of watercourses and the provision of alternative watering facilities on 63 of these farms.

We also funded clean and dirty water separation measures on 21 farms.

This pilot agri-environmental scheme and associated community engagement/education programme resulted in a 24% reduction in the herbicide MCPA concentration and a 40% reduction in the MCPA load, in the raw river water abstracted for drinking water treatment.

A cost benefit analysis carried out demonstrated that for every £1 invested in providing farmers with on-farm advice and implementing the right measure in the right locations, a £3.36 benefit in terms of drinking water quality can be realised over a 30-year period.

**Forests For Water** - the project also piloted measures to reduce the loss of sediment following harvesting of trees and provided evidence of the benefits of enhanced measures to protect water quality from the negative effects of forestry activities.

**Peatlands For Water** - the project pilot trialled an innovative cell bunding technique in a forest to bog peatland restoration at a site in Tullychurry Forest in County Fermanagh. This technique has since been used by others to help restore degraded peatland. Over time this area of restored peatland will capture carbon, improve water quality, support biodiversity and contribute to the climate change solution in Northern Ireland.

The findings from each of these pilots are contained in a legacy website which is available at <https://www.sourcetotap.eu/>

With NI Water having completed this important project, it forms the basis of our approach for the future.

# Environmental Management System (EMS) and ISO14001

In carrying out our core business NI Water contributes to and relies upon the quality of the natural environment, and we strive to protect it by working in an environmentally responsible manner, demonstrating high standards of environmental care and operational performance. NI Water works toward a 'Zero Harm' ambition, which includes avoiding harm to our environment.

NI Water is proud of its achieved maintenance of and compliance with the international standard ISO14001 for our Environmental Management System (EMS). The continual improvement and hard work of our functional staff and business areas, ensures NI Water maintains a strong environmental focus and management of compliance as evidenced through its testing our internal audit plan, and by frequent independent external auditors. Our accreditation to the ISO standard has been managed and maintained since 2003. Our CEO, Board, and Executive Committee support and approve NI Water's Environmental Statement and continued commitment to protecting, preserving, and improving our natural environment.

NI Water's EMS has become an integral part of our daily activities and business processes.

# Water Mains Rehabilitation

NI Water is a customer focused but asset-based organisation. In order to deliver the maximum level of customer service at the lowest sustainable cost, it is important that NI Water assigns expenditure in the most effective possible manner.

The Water Mains Rehabilitation Programme for Northern Ireland was established in 1999 to ensure the investment in water mains infrastructure was appropriately targeted at those areas of greatest need to ensure delivery of a reliable supply of compliant quality water to the people of Northern Ireland and comply with the relevant statutory and regulatory standards.

The performance and condition of the water mains were investigated and assessed through a series of Detailed Zonal Studies against standard criteria developed in conjunction with various internal stakeholders and DWI. This zonal study approach was used during the PC10 and PC13 planning periods.

For the PC15 planning period and, in preparation for the PC21 business plan (covering 2021 – 2027), NI Water revised its approach to identifying Water mains investment needs. In consultation with external stakeholders such as the Drinking Water Inspectorate, the Utility Regulator, and the Consumer Council Northern Ireland, NI Water developed the Water mains Infrastructure Investment Model

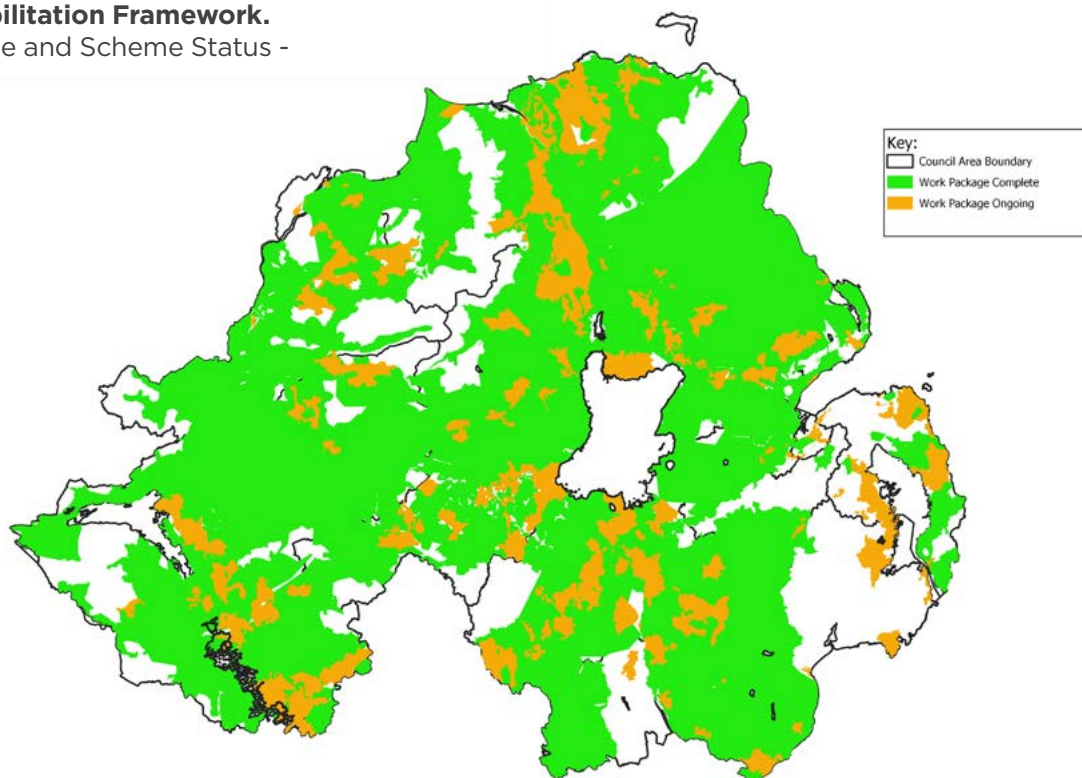
(WIIM). Building on the basis of the previous Zonal Studies approach, which utilised the analysis of structural and water quality issues, the revised approach draws on corporate data, focusing on customer contacts and customer preferences as well as structural and WQ issues when identifying and prioritising investment needs.

The Water Mains Rehabilitation programme delivered 832km during the PC15 period and the target for the PC21 period is 838km.

NI Water Customer targets, for drinking water compliance, are set to assist the company in improving the customer experience as well as to facilitate improvement in Regulatory compliance with lead, iron, and turbidity. The current aim, of improving both the customer experience and Regulatory compliance, in relation to these three parameters, lies with replacement / refurbishment of the drinking water distribution system. The intervention methodology will be reviewed again before the PC27 plan period, with interventions to be considered such as planned area flushing and monitoring and mains conditioning.

## Water Rehabilitation Framework.

Work Package and Scheme Status - June 2023



The map above shows the extent of the current Water Mains Rehabilitation Framework covering most of Northern Ireland. To assist clarity, whilst the council boundaries are shown, the individual councils are not named. Regions in white on the map are largely watercourses or upland areas that do not receive public water supply.

# Sufficiency of Supply

Approximately 910,098 domestic, agricultural, commercial, and business properties in Northern Ireland are connected to the public water supply – this equates to around 99.9% of the total population. This entailed supplying an average of about 608 million litres of high quality drinking water to customers every day during 2022. For this, NI Water utilised 39 sources that include upland Impounding Reservoirs, Boreholes, Rivers, and Loughs.

NI Water has a legislative requirement to produce a Water Resource Management Plan (WRMP) and a Drought Plan as part of its forward planning process. The Water & Sewerage Services Act (Northern Ireland) 2016 permitted NI Water to combine these two plans into the Water Resource and Supply Resilience Plan (WR&SR Plan). The WR&SR Plan sets out how NI Water intends to maintain the balance between supply and demand for water for all its customers over the long-term, and the operational and management options and activities available to respond to short-term critical events such as drought and freeze-thaw. A key strategic aim of this plan is to improve the resilience of Northern Ireland’s water supply system, and the plan is to be updated on a rolling six yearly programme.

The next iteration of the WR & SR Plan is currently underway to ensure outputs are developed in time to inform PC27. This followed a review of the WR & SR Plan Technical Guidance to ensure that NI Water remains in keeping with developments in best practice in water resource planning across the UK, and with any revised objectives and

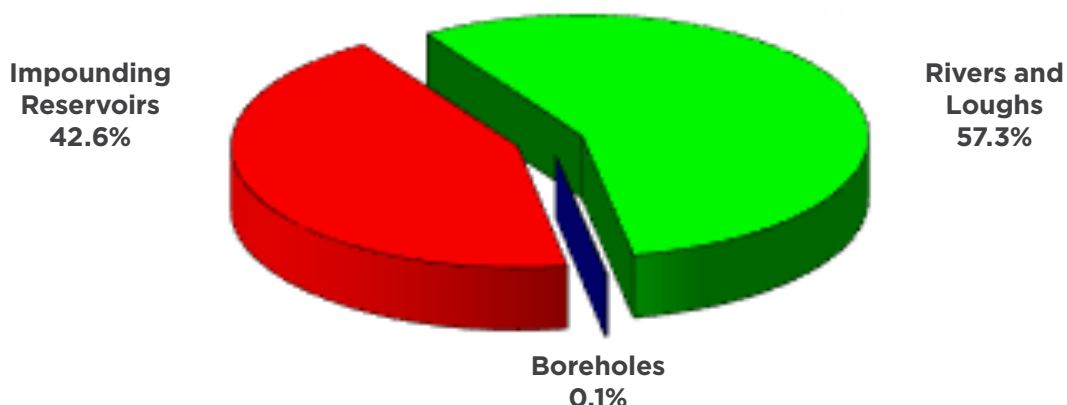
government policy aspects which apply to long term strategic planning of water resources. The key main changes in approach in this plan compared to previous include:-

- Change from 25-year to a 50-year Planning Horizon
- Independent Plan Assurance
- Levels of service for dry year to drought events increased from 1:40 to 1:200
- The adoption of the latest UKWIR environmental assessment guidance for Water Resource & Drought Plans which includes increased focus on sustainability (Carbon Net Zero and Biodiversity Net Gain)

It is anticipated the draft plan will be complete by July 2023 with the final plan being published by January 2024 following consultation.

For the period of this report, water supplies in Northern Ireland were obtained from three types of sources, as shown:-

## Raw Water Sources



# Drinking Water Inspectorate - Technical Audit

The Drinking Water Inspectorate (DWI), a unit within the Northern Ireland Environment Agency, has an independent responsibility to audit drinking water quality compliance against the standards set in the Regulations.

Each year DWI undertakes a technical audit of the measures taken by NI Water to comply with the Regulations. The technical audit process includes:

- The transfer, to DWI, of analytical results of samples taken throughout the year, from water treatment works, service reservoirs and customer taps
- A compliance assessment of this information against the regulatory standards
- Carrying out an inspection programme which examines the sampling, analytical, reporting, water treatment, distribution policies and relevant procedures.

In 2022, following the removal of COVID-19 restrictions, the on-site technical audit inspection programme was resumed. Five audits were completed:

- An audit of Ballinrees WTW
- An audit of Clay Lake WTW
- Two audits of Sampling Procedures
- An audit of the Laboratory Information Management System (LIMS)

DWI made a number of recommendations and suggestions, and NI Water has followed up on these issues. DWI will report on these inspections and the quality of water supplied by NI Water in its annual report, due to be published later in the year. DWI is located at Klondyke Building, Cromac Avenue, Gasworks Business Park, Lower Ormeau Road, Belfast BT7 2JA.

## Water Quality Events

NI Water is required under the Drinking Water Regulations to notify the DWI whenever an event occurs that has the potential to impact on drinking water quality. NI Water fully investigates all events and provides the DWI with a substantive report for each. After investigation the event may be shown not to have had a detrimental effect on water quality and is classified in the “Drinking Water Inspectorate’s Report” as “Not Significant” or “Minor” as opposed to “Significant”, “Serious” or “Major”.

A list of all Water Quality Events which were “Significant”, or above which occurred during 2022 is detailed in Appendix 4.

## Regulatory Enforcement

During 2022, two Regulation 31(4) Notices were ongoing:

- Regulation 31(4) Notice 2020/001 required NI Water to install and have operational, a treatment system at Derg WTW that is effective in the removal or reduction of MCPA to achieve a final water result that meets the maximum regulatory limit of MCPA of 0.10 µg/l by 31 March 2022. This was amended on 9 February 2022 to provide an additional 12 months to complete the required treatment upgrade, by 31 March 2023.
- Regulation 31(4) Notice 2020/002 requires NI Water to install and have operational, a treatment system at Ballinrees WTW that is effective in the removal or reduction of MCPA to achieve a final water result that meets the maximum regulatory limit of MCPA of 0.10 µg/l by 22 December 2023. This was issued on 17 December 2020.
- Regulation 31(4) Notice 2020/003 requires NI Water to install and have operational, a treatment system at Ballinrees WTW that is proven to be effective in the treatment of taste and odour parameters to achieve a final water and consumer tap result that is acceptable to the consumer and there is no abnormal change by 22 December 2023. This was issued on 17 December 2020.
- Regulation 31(4) Notice 2021/001 requires NI Water to install and have operational, a treatment system at Drumaroad WTW that is proven to be effective in the removal or reduction of Aluminium to achieve a final water result that meets the maximum regulatory limit of Aluminium of 200 µg/l by 30 April 2025. This was issued on 8 July 2021.

The Regulations require water quality to be monitored using analytical systems, which can demonstrate that appropriate accuracy is achieved and maintained. NI Water attaches great importance to the integrity of the analysis and for this reason applies strict laboratory analytical quality control procedures. These systems and procedures are subject to external inspection and audit by the Drinking Water Inspectorate and an assessment of NI Water's performance is included in the Inspectorate's annual report.

NI Water has achieved the requirements of the Drinking Water Testing Specification (DWTS). This is a national scheme agreed between the Drinking Water Inspectorate and the United Kingdom Accreditation Service for quality assurance within laboratories carrying out analysis for the water industry.

In addition to this, both of NI Water's testing laboratories have attained the necessary standard of analytical excellence to the requirements of ISO 17025. UKAS auditors carry out an annual audit of the NI Water laboratories' quality system to maintain this.

NI Water laboratories provide an accredited analytical service to external customers for both drinking water quality testing and wastewater quality testing.

## Use of Technology for Increased Assurance

To assist in its ability to audit its sampling programme, NI Water has put in place an electronic system to produce an enhanced audit trail and eliminate errors in data transcription.

The system uses android phones with a bespoke Remote Sampler app. The phone camera is used to scan the labels on the sample bottles and the built in GPS (Global Positioning System) is used to give an accurate sample audit, location fix, and time for each sample as it is collected. When the sampler returns to the laboratory, this data is downloaded with all the ancillary audit data onto NI Water's Laboratory Information Management System (LIMS) where it updates the existing sample information. This system has recently been upgraded to a cloud-based system to more fully automate the audit trail and chain of custody.

Within the laboratory environment, the majority of analytical results are transferred directly into LIMS via direct data capture from the laboratory instrumentation. This information transference minimises the possibility of transcription errors and again gives an enhanced audit trail.



# Water Quality Summary

## NI Water Sites in Service

During 2022, the numbers of NI Water sites in service were:

Location Type	Number in Service
Water Treatment Works	25
Service Reservoirs	287
Water Supply Zones	55
Authorised Supply Points (see glossary)	25

## Overall Water Quality Testing

During 2022, 99,447 microbiological, physical, and chemical tests were carried out for mandatory, and indicator consented parameters on water samples taken from water treatment works, service reservoirs and customer taps. Of these, 99,359 tests complied with the regulatory standards giving an overall percentage compliance of 99.91%.

Location Type	No of Samples	Regulatory Parameters Analysed	Regulatory Parameters used for Compliance Assessment
Water Treatment Works	6,428	45,231	19,519
Service Reservoir	14,886	89,316	29,772
Zone ( including Authorised Supply Point)	5,568	65,871	50,156
<b>Overall</b>	<b>26,882</b>	<b>200,418</b>	<b>99,447</b>

As well as the regulatory required analyses, NI Water also carries out a large number of operational process control determinations, to ensure that its treatment processes are fully optimised.

# Water Quality Summary

## Microbiological Quality

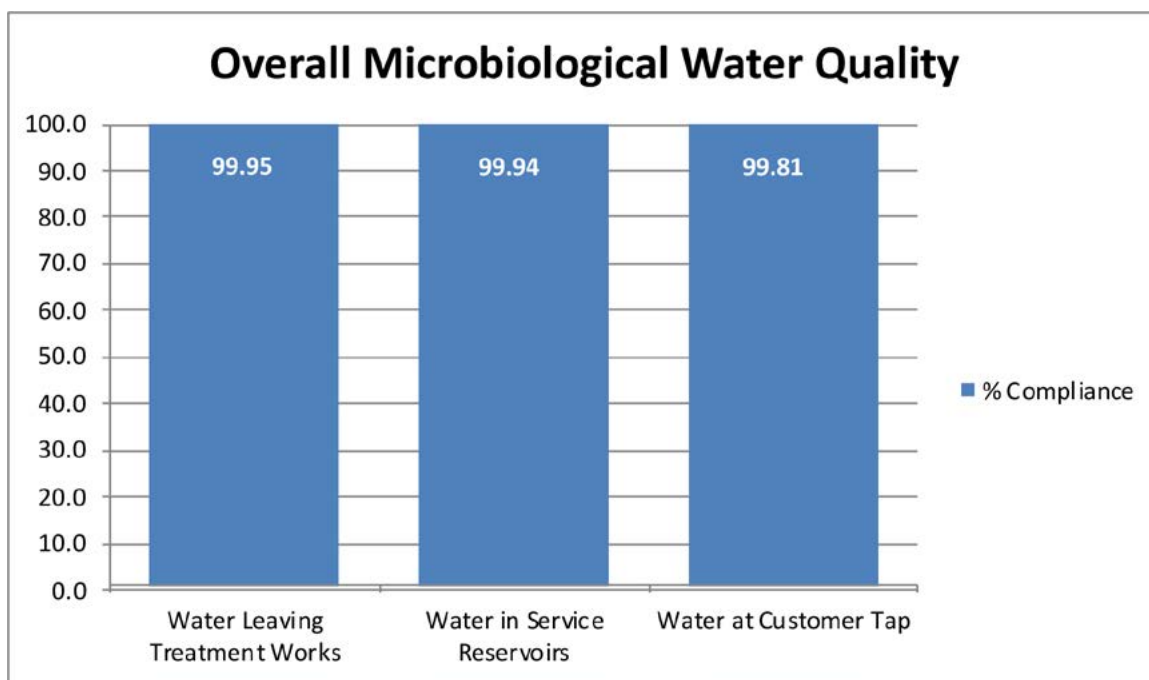
Water leaving water treatment works is disinfected with chlorine to safeguard public health by destroying microorganisms. This is the most important part of the water treatment process. NI Water has developed a disinfection policy for water treatment and individual disinfection statements for each water treatment works. This will continue to ensure that all water supplied by NI Water is adequately disinfected, and water supplied to customers is safe and pathogen free.

To ensure the effectiveness of the treatment and chlorination process, the wholesomeness of treated water is regularly examined to ensure the absence of coliform bacteria and faecal coliforms (*E. coli*) at water treatment works, service reservoirs and in the distribution system at customer taps. The presence of these organisms may indicate potential microbiological contamination of water supplies,

and if they are detected in drinking water, immediate action is taken to identify the source and to minimise any risk to public health.

Many instances of microbiological failure in samples taken from customer taps are due to contamination of the tap itself, in particular with mixer type kitchen taps. For this reason if a positive result is obtained, investigations are immediately carried out to identify if the positive result is due to the specific tap or the general system. If the contamination is found to be due to the tap or internal plumbing, NI Water will inform the customer in writing of the reason for the failure so that they can take appropriate action. A copy of the letter is also provided to the Public Health Agency, the local Environmental Health Officer, and the DWI.

A summary of the microbiological quality of water supplied in 2022 is given below.



# Water Quality Summary

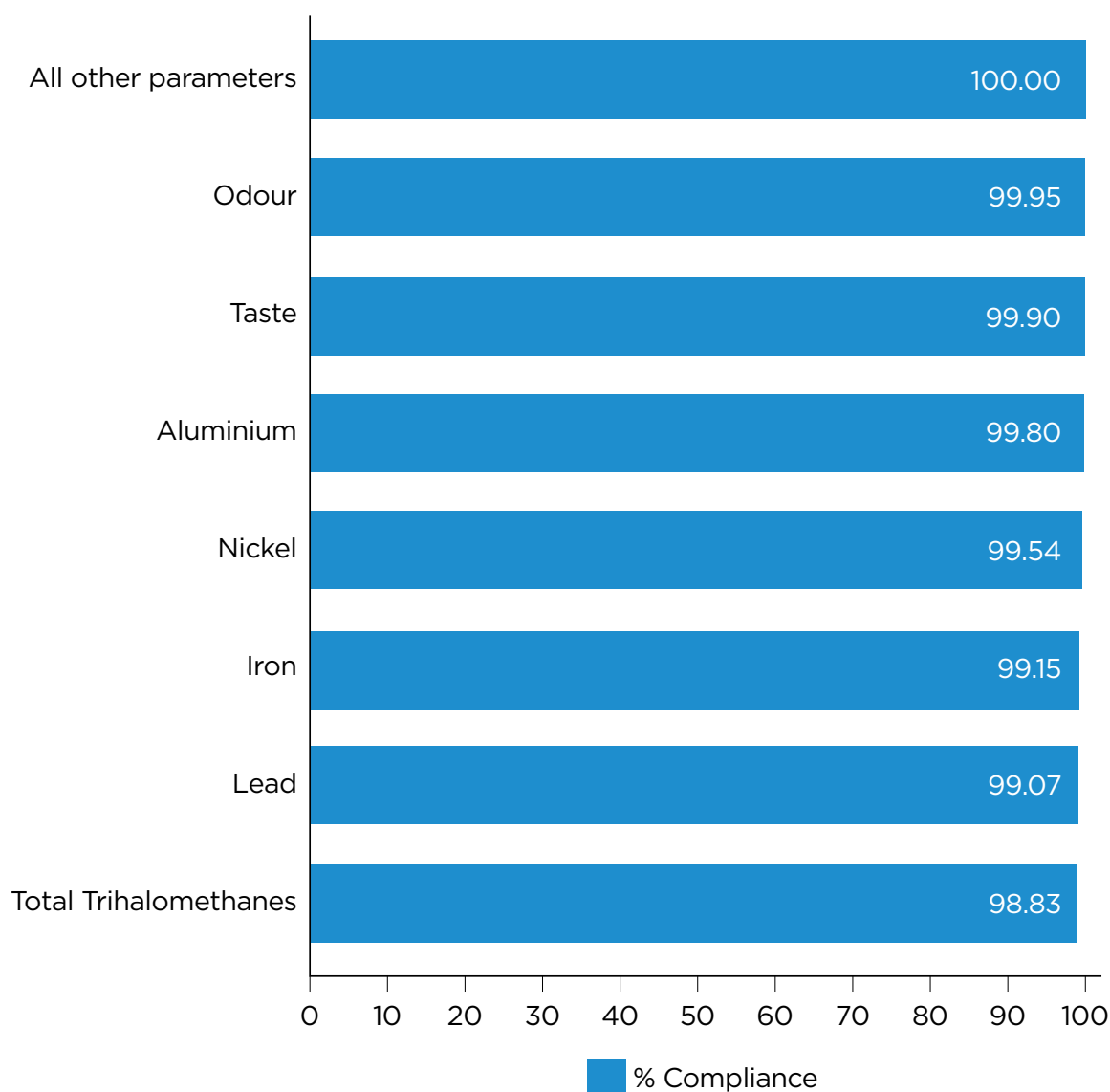
## Physical and Chemical Quality at Customer tap

Physical and chemical quality standards apply to water supplied at customer taps. The Regulations lay down the required sampling frequency for each parameter or group of parameters dependent on the resident population of the water supply zones.

- During 2022, 38,349 physical and chemical tests were assessed against their consent for water samples taken at customer taps or authorised supply points. Of these, 38,314 tests complied with the regulatory standards giving a compliance of 99.91% for physical and chemical tests.

Appendix 2 shows the extent of NI Water's compliance with the regulatory standards at both customer tap and authorised supply point. For most parameters, compliance is judged based on the results of individual samples. If a single sample exceeds the PCV, that supply is deemed not to comply with the regulatory standards, even if the cause is outside NI Water's control, e.g. defective plumbing within premises. Improved compliance will be achieved through the water treatment works investment programme and thereafter through improvements to the water storage and distribution system.

### Percentage Compliance by Chemical Parameter



# Water Quality Summary

## Overall Water Quality

Overall Water Quality			
	Number of Analytical Tests	Number of Tests Exceeding PCV	% Compliance with Regulatory Standards
<b>Water Leaving Treatment Works</b>			
Bacteriological Analysis	12,856	6	99.95
Indicator parameters	6,663	6	99.91
<b>Total</b>	<b>19,519</b>	<b>12</b>	<b>99.94</b>

Water in Service Reservoirs			
Bacteriological Analysis	29,772	18	99.94
<b>Total</b>	<b>29,772</b>	<b>18</b>	<b>99.94</b>

Water at Customers' Taps or Authorised Supply Points			
Bacteriological Anal. inc Coliforms	11,807	23	99.81
Zone Chemical Analysis	23,464	35	99.85
Supply Point Chemical Analysis	9,519	0	100.00
Indicator parameters	5,366	0	100.00
<b>Total</b>	<b>50,156</b>	<b>58</b>	<b>99.88</b>

<b>Total Mandatory Parameters</b>	<b>87,418</b>	<b>82</b>	<b>99.91</b>
<b>Total Indicator Parameters</b>	<b>12,029</b>	<b>6</b>	<b>99.95</b>

<b>Overall Water Quality Total</b>	<b>99,447</b>	<b>88</b>	<b>99.91</b>
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Explanatory notes of exceedances of the microbiological and chemical quality standards with less than 100% compliance are provided in the following section.

During 2022, the following main chemical parameters exceeded their prescribed concentration or value at some point, or have historically been parameters of concern.

## Aluminium

The standard set for aluminium is based on aesthetic considerations. A number of water supplies may contain concentrations of aluminium, which could exceed the standard from time to time because of changes in raw water quality or treatment process fluctuations. These treatment processes are regularly reviewed and upgraded where required to lower the aluminium levels to below regulatory levels.

## Iron

The iron standard has been set for aesthetic reasons as levels persistently above the standard can give rise to discoloured water and particulate matter. Where the standard for iron has not been met, this may be due to problems of corrosion of iron water mains. There is an ongoing proactive programme of flushing and cleaning of the distribution system to minimise the problem. In addition, NI Water has an ongoing Water Mains Rehabilitation Programme in which supply zones that experience water quality and other supply problems are subjected to a detailed zonal study. These detailed zonal studies include the analysis of historic water quality data (including iron), customer complaint information, and the implementation of targeted water quality sampling and analysis programmes to determine the nature and extent of the water quality problems. Appropriate solutions to the problems are then developed which include mains cleaning and renovation, and replacement of parts of the distribution system. Implementation of the solutions is undertaken either by NI Water or by its contractors.

## Lead

Water leaving treatment works and in the distribution systems, contains only trace amounts of lead. However, where lead has been used for service pipes between the water main and the kitchen tap or in domestic plumbing, there may be a risk of concentrations at the customer tap exceeding the lead standard.

Having lead pipework is likely to result in lead levels in drinking water, which are above the limits set out in drinking water regulations. The regulatory limit (PCV or Prescribed Concentration or Value) for lead in drinking water is 10 µg/l.

The Drinking Water Regulations require that NI Water must minimise the risk of exceedances of the regulatory limit for lead drinking water (10 µg/l) whether the risk for failure is due to the company or customer owned pipes. Orthophosphoric acid is added to the water supply, across Northern Ireland, to reduce the amount of lead 'pick up' from lead pipes, into the drinking water at the customer tap. This is a water industry wide practice to help to reduce the risk of lead exceedances and to meet the requirements of the drinking water regulations. Orthophosphate dosing has been very successful in mitigating the risk for lead failures. However, this treatment alone will not ensure 100% compliance due to the presence of lead supply pipes in customer property. The age and condition of lead pipe can result in lead in the drinking water being above the regulatory limit even with orthophosphate dosing in place. The only way to remove the risk for lead in drinking water is for all lead pipe to be removed, including within customer properties.

In addition to treatment of drinking water, to minimise lead pick up from pipework, NI Water has a programme to identify and replace lead communication pipes within its infrastructure, either through our targeted lead pipe replacement programme or the replacement of lead communication pipes encountered during water mains rehabilitation. As part of this programme, customers are informed when lead communication pipes (NI Water's responsibility) have been replaced and are encouraged to replace their lead supply pipe (customer's responsibility).

Lead monitoring, through customer tap sampling and analysis, forms part of our routine testing regime in line with the requirements of the Drinking Water Regulations. Where a sample taken for lead analysis is shown to exceed the regulatory limit for

# Water Quality Issues

NI Water is required under the Drinking Water Regulations to inform the customers, and their neighbours, of the lead result. In addition if a sample is found to exceed the limit for lead in drinking water the Public Health Agency, the local Environmental Health Officer, and DWI are notified by NI Water. Where it is found that the exceedance is attributable to a lead service pipe NI Water will replace free of charge, any of its lead pipes supplying the property. It will be the responsibility of the property owner to replace any lead pipework on the property.

Many older properties still have service pipes and internal plumbing wholly or partly comprised of lead. Lead pipework was used in many houses built in Northern Ireland before 1970 and much of it still exists.

It is therefore important for householders to check if they have any lead pipework in their property.

Some simple checks for householders to do include:

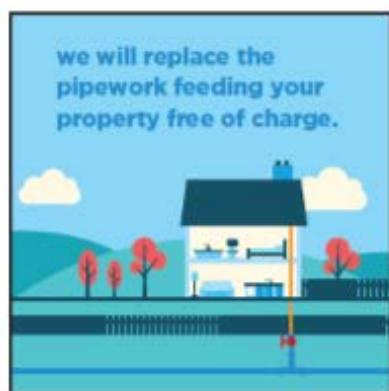
- Look in or behind the cupboards in your kitchen. You may also need to look in other places, such as the cupboard under the stairs. Find the pipe leading to the kitchen tap. Check if it is lead along as much of its length as possible. Unpainted lead pipes are dull grey, and the surface feels soft. If you scrape the surface gently with a kitchen knife, you will see the shiny, silver-coloured metal beneath.

- Open the flap of the stop valve outside your property. Examine the pipe leading from the stop valve to your property. If you can, scrape its surface gently.
- Some other pipe materials which you might come across which are normal and don't need replaced include copper, iron, and plastic.
- If you are still unsure, ask a plumber for a second opinion.

If you find lead pipes, you should have these replaced as soon as possible. It will be the responsibility of the property owner to replace any lead pipework on the property. NI Water will replace free of charge, any of its lead pipes supplying a property, if it receives a written request from a customer who has replaced the portion of lead service pipe for which the householder is responsible.

A leaflet on lead in drinking water is available from the NI Water website at [www.niwater.com/about-your-water](http://www.niwater.com/about-your-water)

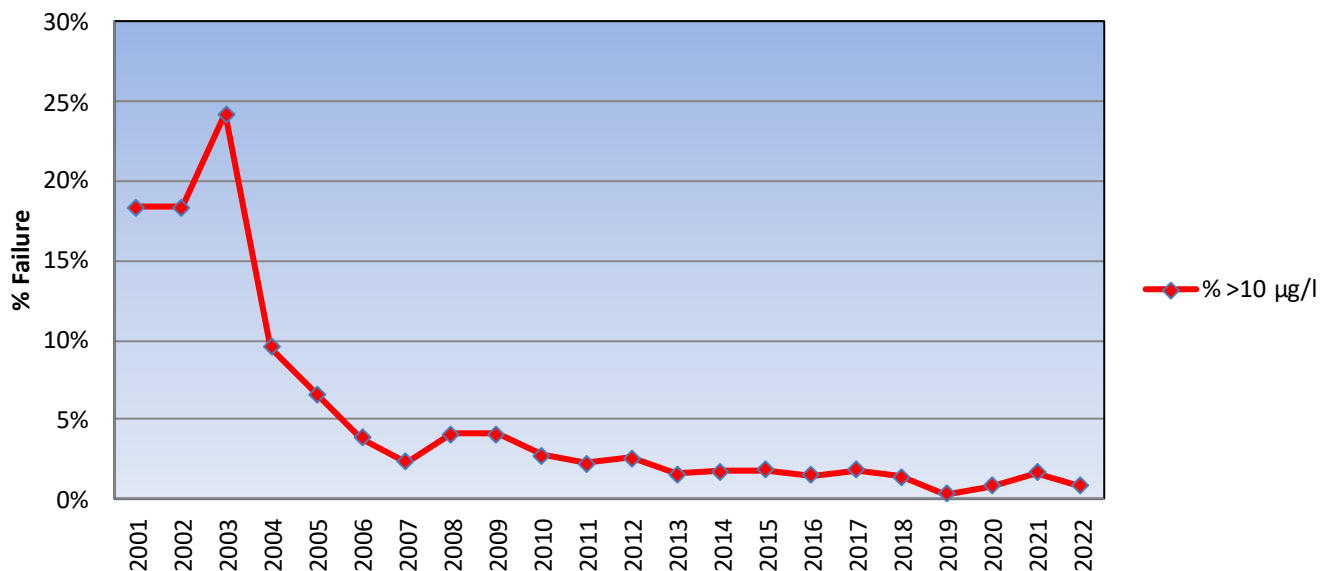
Amongst other details, this leaflet explains who is responsible for replacing each part of the lead in the domestic system.



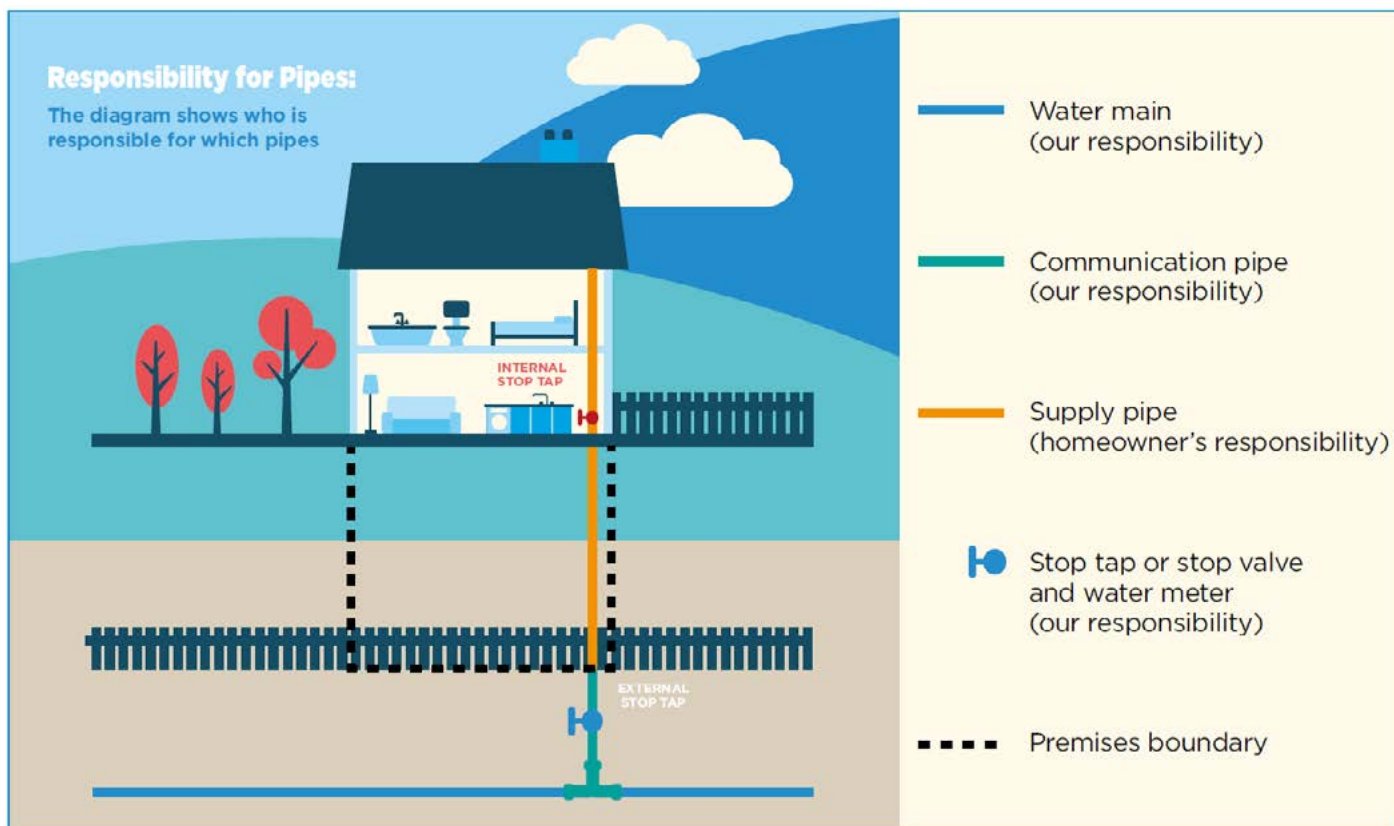
# Water Quality Issues

The effectiveness of the dosing can be seen in the graph below, showing the optimisation of the dosing from the water treatment works to meet the new regulations.

## % Lead Exceedances against the current 10 µg/l Standard



The lead in drinking water standard was reduced from 25 µg/l to 10 µg/l at the end of 2013.



## Manganese

Manganese occurs naturally in many water sources. Concentrations can vary seasonally or be attributed to the disturbance of accumulated deposits at the bottom of service reservoirs when the water is drawn down or when water circulation occurs. The standard for manganese has been set for aesthetic reasons to prevent unpleasant tastes, staining or discoloured water.

## Nickel

Nickel exceedances are typically caused by customers' taps or fittings and are not normally due to issues with the public water supply.

## Pesticides

Pesticides include insecticides, herbicides, fungicides, and algaecides. These can find their way into watercourses from a variety of sources, mainly from use in agriculture or weed control. NI Water has an ongoing pesticide monitoring programme and analysed samples for 38 individual pesticides during 2022. NI Water liaises with other regulatory bodies in Northern Ireland such as the Northern Ireland Environment Agency (NIEA) regarding the control of pesticide usage.

NI Water is engaged on an ongoing series of catchment management plans as part of its overall Drinking Water Safety Plans, which include looking at pesticide usage and control. The Water Catchment Partnership mentioned previously, has been setup to address pesticide problems across Northern Ireland and raise awareness of the risks of using pesticide products close to drinking water abstraction sources.

## Total Trihalomethanes (THMs)

THMs are chlorination by-products arising from the reaction of chlorine, used for disinfection, with natural organic material present in water. The maintenance of microbiological quality by disinfection using chlorine is NI Water's main priority. NI Water's water abstractions are predominantly drawn from surface sources, which can contain these natural organic materials.

THM formation is dependent on a wide range of differing factors and so changes in THM concentrations may be a consequence of one or many factors. THM levels tend to increase with pH, temperature, contact time, residence time, length of the distribution network, and the level of "precursors" present. Precursors are the organic material that reacts with chlorine to form THM's.

NI Water has developed and put in place ongoing THM action plans to reduce the risk of THM failures. These action plans alongside our drinking water safety plan risk assessment process are used to help identify where investment may be required to reduce the risk of THM failures. NI Water's ongoing water treatment works investment programme is designed to provide improved treatment to reduce organic matter prior to chlorination and thereby reduce THM levels.

In addition to its ongoing programmes of work, NI Water is constantly reviewing its operational procedures to reduce THM levels in the distribution system, whilst maintaining microbiological quality.

Improved compliance over all of Northern Ireland is expected as improvements to water treatment works and the distribution system continue.

## Turbidity

Particulate matter, usually the re-suspension of sediments present in the distribution system, affects the turbidity of drinking water. Systematic flushing of the local pipe work usually restores water quality.

## Summary

All exceedances of the regulatory standard are investigated following procedures agreed with the Health Authorities and the Drinking Water Inspectorate. Closure of an event cannot take place without their approval.

## Further information

Various information leaflets giving more details of water information may be found at [www.niwater.com/about-your-water](http://www.niwater.com/about-your-water)



# The Water Supply (Water Fittings) Regulations (NI) 2009

NI Water was granted an operating licence to provide water and sewerage services in Northern Ireland on 1st April 2007, replacing the former Water Service which was an executive agency within the former Department for Regional Development (DRD). This change in the delivery of water and sewerage services in Northern Ireland was accomplished under auspice of The Water and Sewerage Services (Northern Ireland) Order 2006 (the 2006 Order).

The Water Supply (Water Fittings) Regulations (Northern Ireland) 2009 (the 2009 Regulations) were subsequently made by the then DRD under Articles 114 and 300(2) of the 2006 Order and came into operation on 3rd August 2009.

NI Water is obliged to inspect its customer premises for compliance with the requirements of the 2009 Regulations which are primarily designed to prevent the **waste, misuse, undue consumption, erroneous measurement** of water and most importantly to **prevent contamination** of wholesome water.

Government codes known as the Standard Industrial Classification (SIC) designating economic activity are used by NI Water to generate fluid categories, these are then used to define risk categories associated with different types of domestic and non-domestic properties for inspection.

Owners and occupiers of premises, and anyone who install plumbing systems or water fittings, have a legal duty to ensure that their systems satisfy the requirements of the Regulations. Advance notice must be given, in most cases, of proposed

installations, so architects, building developers and plumbers follow the Regulations on behalf of future owners or occupiers. Whilst voluntary compliance is preferable NI Water are likewise authorised to take formal enforcement action against customers in cases of non-compliance

Department for Infrastructure (DfI) Water and Drainage Policy Division (WDPD) is deemed the Regulator of this activity and meet NI Water on a quarterly basis to discuss issues arising under the Regulations, compliance activities and contraventions. NI Water is also obliged to publish a report on customer compliance activities no later than the 30th June every year, a copy of which is provided to DfI.

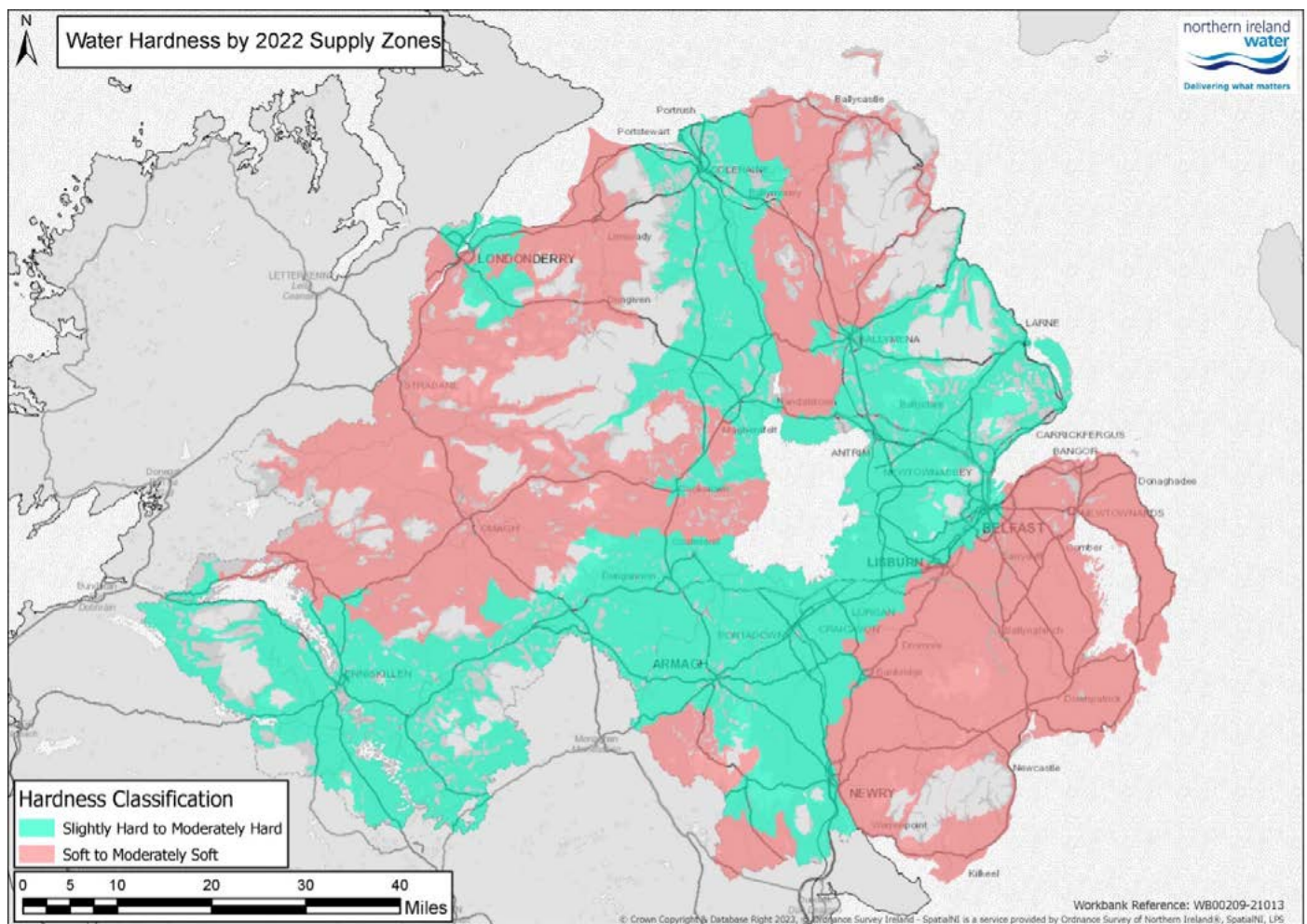
NI Water's implementation of the 2009 regulations is detailed at Appendix 6 herein. The table below details the numbers of inspections completed contraventions observed and contraventions awaiting customer resolutions during the 2022 calendar year.

Description	Number (by 2022 calendar year)
Number of Domestic and Non Domestic Inspections	410
• Proactive	356
• Reactive	54
Number of Premises/Bodies visited	414
Number of Contraventions recorded	948
Number of Contraventions recorded (All FC1-3)	724
Number of Contraventions recorded (All FC4-5)	224
Number of Contraventions rectified (FC1-3)	336
Number of Contraventions rectified (FC4-5)	143
Number of Outstanding Contraventions	469
Referred for enforcement (Legal Department)	0

## Drinking Water Register

A Drinking Water Register is available from NI Water's website at [www.niwater.com/water-quality-results/](http://www.niwater.com/water-quality-results/) showing the most recent year's detailed water quality results for customers based on their postcode, and details of water hardness to enable customers to set up dishwashers etc correctly.

## Water Hardness Map



# Public Information

If you are unable to access the website, the Register may be requested, free of charge, during normal working office hours through the customer relations centre below. Customers may request and obtain a free copy of the information for the water supply zone they live in. A charge may be made for printed information on other zones.

Customers, who wish to receive information about the quality of water in their water supply zone by post, can write to the address listed below:

**Customer Relations Centre**  
**4th Floor**  
**Capital House**  
**3 Upper Queen St**  
**Belfast BT1 6PU**

Customers can contact the Customer Relations Centre on our Waterline: **03457 440088**

Customers who have hearing difficulties can also contact us via Text Relay on: **03457 440088**

Customers may also contact Customer Services by email on: [waterline@niwater.com](mailto:waterline@niwater.com)

Further information for customers may be obtained at the following website: [www.niwater.com](http://www.niwater.com)

This site also contains a PDF version of the most recent Water Quality report.

## Social Media

NI Water actively uses social media to interact with and inform its customers. This includes:

### Facebook



This is updated routinely and in the event of a major incident will be used to communicate directly with customers on [www.facebook.com/niwater/](http://www.facebook.com/niwater/)

## YouTube

### YouTube

NI Water has its own YouTube channel [www.youtube.com/northernirelandwater](http://www.youtube.com/northernirelandwater) that hosts NI Water videos such as “How to protect your pipes”, “Saving water in the home” or “Your water bill explained”. It can also be used to host video messages for customers during a major incident.



NI Water’s twitter account is routinely used to respond directly to customers queries at [twitter.com/niwnews](http://twitter.com/niwnews)

We are extending our social media service and introducing WebChat at [www.niwater.com/contact-us/](http://www.niwater.com/contact-us/), providing more ways to keep our customers informed and offering them more choices for interacting with us.

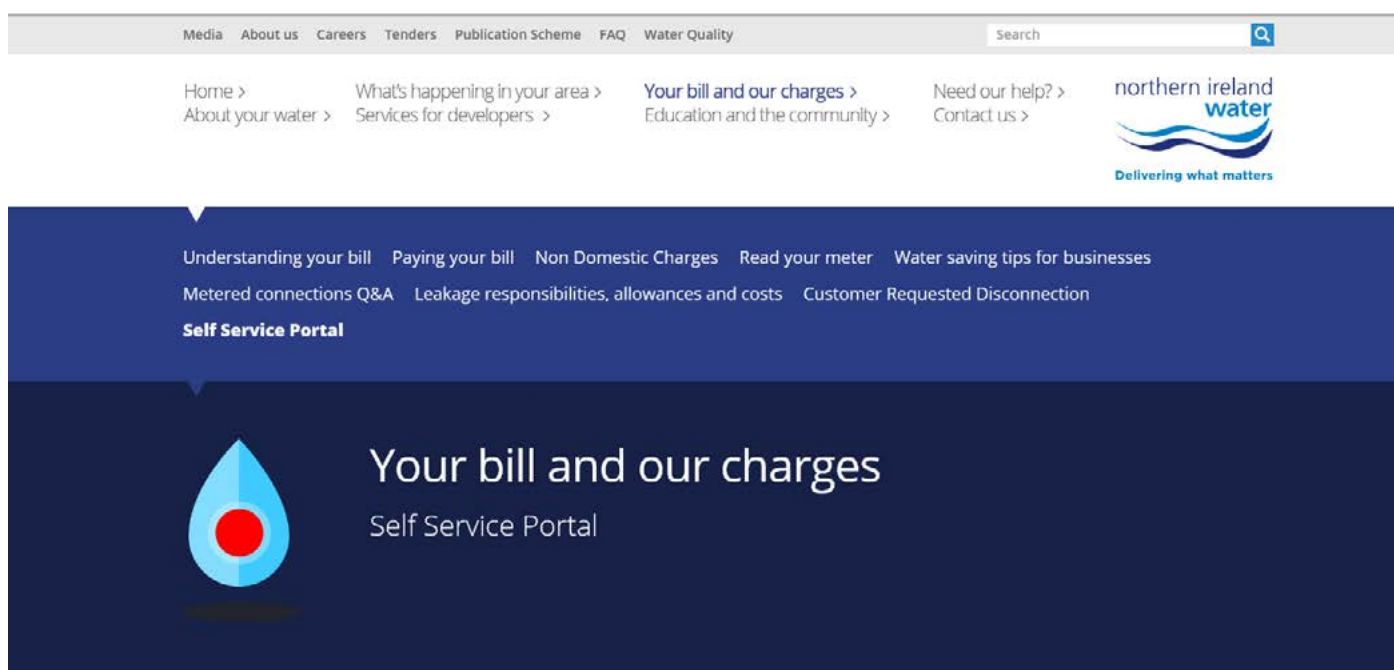
## Customer Services

Staff in the Customer Relations Centre record details and the nature of all enquiries, requests for services, emergencies, and complaints. All contacts are logged and routed directly to staff who will investigate the matter and resolve the problem as quickly as possible.

Customer Services produces a range of leaflets about services provided, including those designed to give customers the opportunity to learn more about water quality standards, water efficiency and the need to use water wisely. The leaflets can be obtained from the Customer Relations Centre or may be viewed on the above website at [www.niwater.com/about-your-water](http://www.niwater.com/about-your-water)

## Self Service Portal

As part of our ongoing efforts to improve the overall customer experience, we have taken steps to make interactions more convenient by developing a web based Self Service platform. This allows customers to log into their personal account online and access their details at a time that is convenient to them.

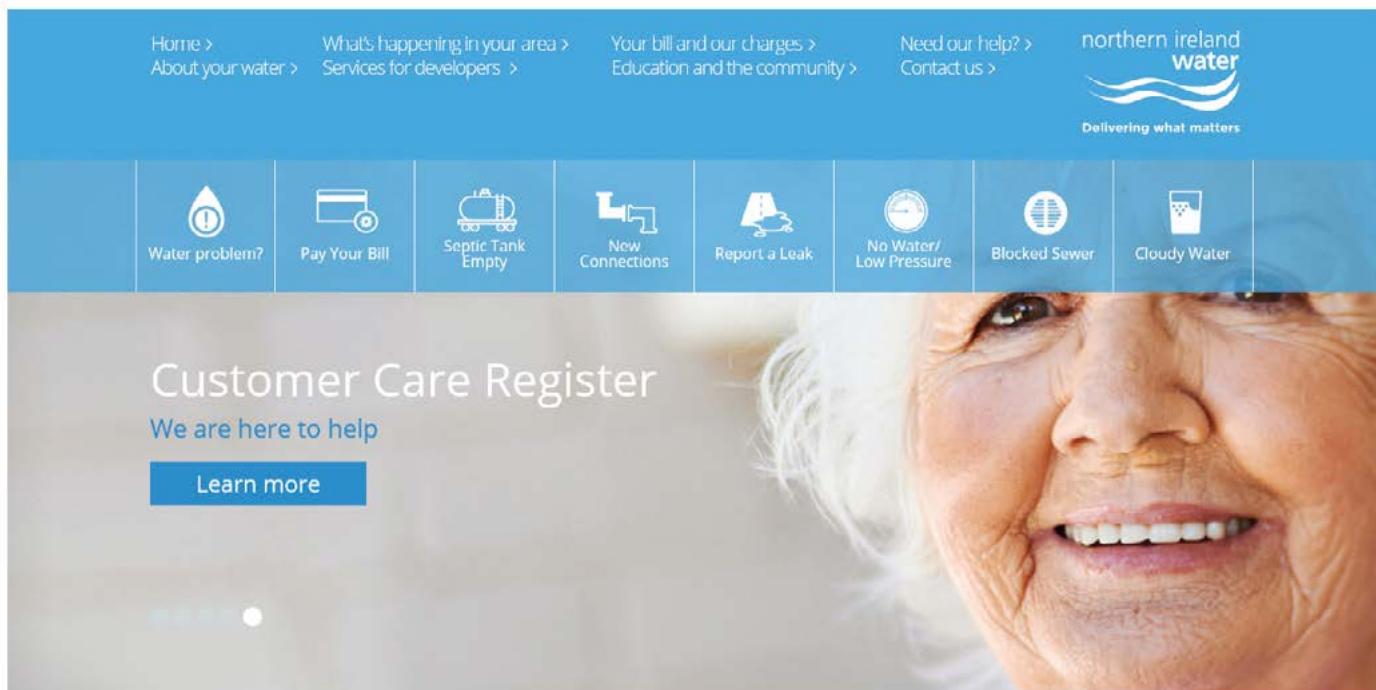


Once registered, customers are able to:

- view their account balance
- view the payment plan of individual schedules
- view bill and payment history
- view desludging request history
- process a new desludging request
- pay a bill
- manage account details
- participate in a live Webchat with a Customer Service advisor

This web portal is found at [selfservice.niwater.com](http://selfservice.niwater.com)

## Customer Care Register



NI Water provides essential services for all our customers throughout Northern Ireland.

We offer a range of free additional services if you are an older customer, have a serious medical condition, or need extra help for any other reason.

You need to join our Customer Care Register at [www.niwater.com/customer-care-register/](http://www.niwater.com/customer-care-register/) to get the extra free services you or anyone in your household would like to receive.

Alternatively, telephone Waterline on **03457 440088**

### Doorstep Service

If you have a hearing difficulty, we will knock the door louder and speak clearly when we call with you. If you have a mobility problem, we will allow more time for you to answer the door.

### Password scheme

You can ask for a password to help you identify our staff. Please arrange a password with us. Our staff will always use this password when they visit you.

If someone claims to work for us but does not know your password, do not let them in.

Instead, please get in touch with us and we will check to see if the caller really works for us.

### Carers Contact Service

You can name a carer or relative who:

- can contact us on your behalf
- we can contact if we need to reach you at anytime
- we can post information directly to.

# Major Incident Information

In a major incident or emergency (such as freeze/thaw events following a prolonged period of extremely cold weather), NI Water can experience a massive increase in demand for information by our customers which would overwhelm the normal systems in place.

To increase the number of calls answered and the quality of information provided, NI Water has installed a High Volume Call Answering (HVCA) system. This “always-on” service monitors all incoming calls to Waterline and takes on the additional load during unexpected peaks. The NI Water HVCA system recognises customers using the telephone number held on their customer record or it can use Voice Recognition to allow customers to state their Post Code etc. (Voice Recognition like this is used on many smartphones and call handling systems in banks etc).

NI Water’s customers should have a better experience when they ring us because their call will always be answered, and they should be provided with up-to-date information.

NI Water’s management of the incident will be improved because we will know when, and why, each customer has called. This allows a more

detailed picture of the reasons customers are calling and the potential causes to be built up. This technology puts NI Water on a par with other utilities in Northern Ireland and other water companies in the UK.

## Major Incident and Major Emergency Website

NI Water’s website routinely provides information to its customers regarding interruptions, repairs, and planned upgrades as well as frequently asked questions and answers and links to helpful sites e.g. to find a plumber etc.

If a major incident or emergency is declared, NI Water’s normal website has the facility to become a dedicated portal for emergency information. This allows customers to quickly find out information based on their postcode.

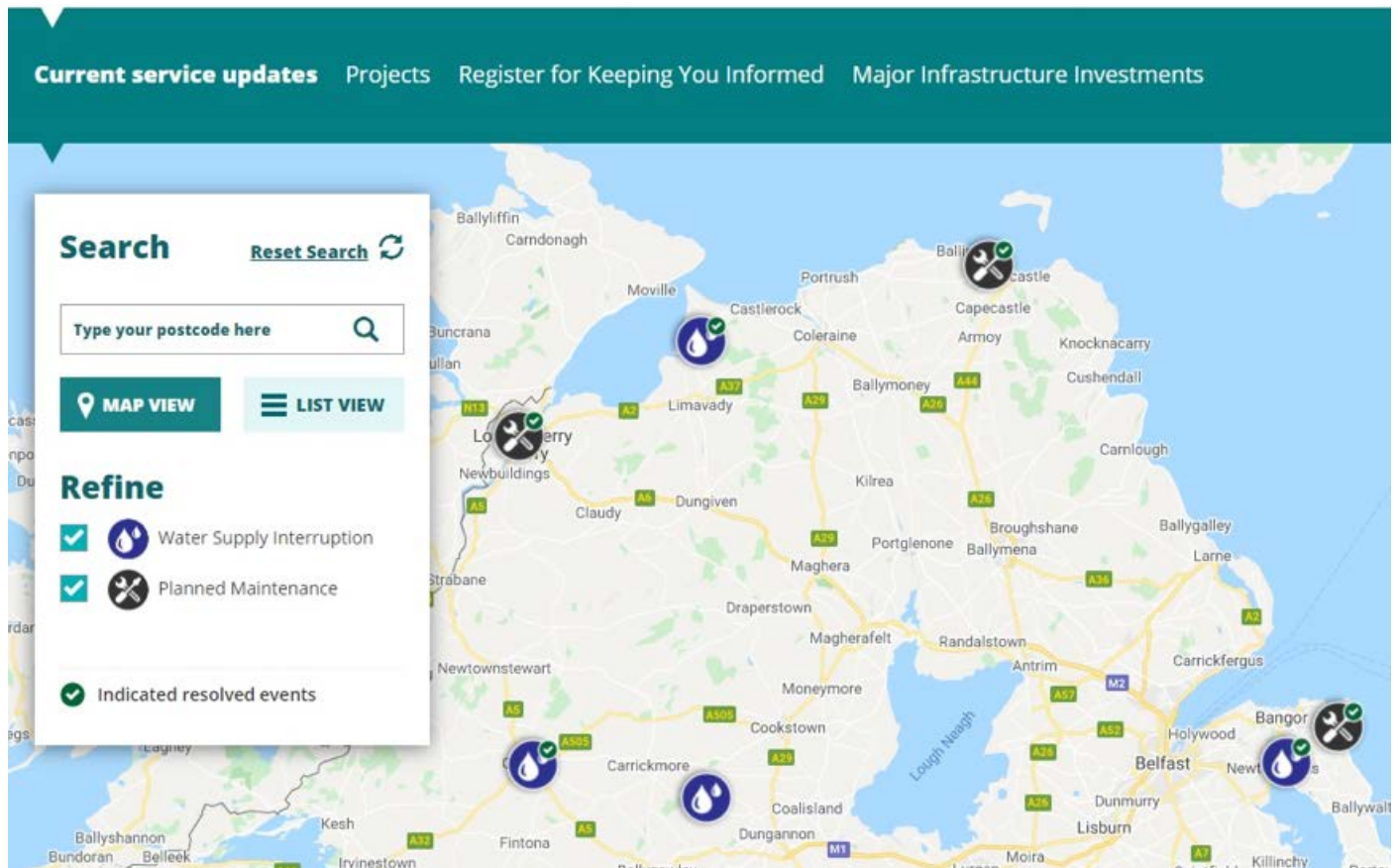
The screenshot shows the NI Water website interface. At the top, there is a navigation bar with links: Home >, About your water >, What's happening in your area >, Services for developers >, Your bill and our charges >, Education and the community >, Need our help? >, Contact us >, and the northern ireland water logo with the tagline "Delivering what matters". Below the navigation bar is a row of service icons: Water problem?, Pay Your Bill, Septic Tank, New Connections, Report a Leak, No Water/ Low Pressure, Blocked Sewer, and Cloudy Water. The main content area features a large blue banner with the text "Belfast City Centre Water Supply Disruption" and "Waterline 03457 440088". A "Learn more" button is located at the bottom left of the banner. On the right side of the banner is a large white warning triangle with a red exclamation mark inside.

# Major Incident Information

Information available includes:

- Bursts
- Alternative Water Supplies
- Planned Restrictions to Supply
- Low Reservoir Levels
- Boil Notices

The site support and throughput allows in excess of 200,000 visits per hour by customers.



# Appendix 1

## Drinking Water Quality Standards

Water Supply (Water Quality) Regulations (Northern Ireland) 2017

### Schedule 1

#### Prescribed Concentrations And Values

**Table A.**  
**Microbiological Parameters**

Part I: Directive Requirements

Parameters	Concentration or Value (maximum)	Units of Measurement	Point of compliance
Enterococci	0	number/100ml	Customers' taps
<i>Escherichia coli</i> ( <i>E. coli</i> )	0	number/100ml	Customers' taps
Coliform bacteria	0	number/100ml	Customers' taps

**Table B.**  
**Chemical Parameters**

Part I: Directive requirements

Parameters	Concentration or Value (maximum)	Units of Measurement	Point of compliance
Acrylamide	0.10	µg/l	(i)
Antimony	5	µg Sb/l	Customers' taps
Arsenic	10	µg As/l	Customers' taps
Benzene	1	µg/l	Customers' taps
Benzo(a)pyrene	0.01	µg/l	Customers' taps
Boron	1	mg B/l	Customers' taps
Bromate	10	µg BrO <sub>3</sub> /l	Customers' taps
Cadmium	5	µg Cd/l	Customers' taps
Chromium	50	µg Cr/l	Customers' taps
Copper	2	mg Cu/l	Customers' taps
Cyanide	50	µg CN/l	Customers' taps
1,2 Dichloroethane	3	µg/l	Customers' taps*
Epichlorohydrin	0.10	µg/l	(i)
Fluoride	1.5	mg F/l	Customers' taps
Lead	10	µg Pb/l	Customers' taps
Mercury	1	µg Hg/l	Customers' taps
Nickel	20	µg Ni/l	Customers' taps
Nitrate	50	mg NO <sub>3</sub> /l	Customers' taps
Nitrite	0.5	mg NO <sub>2</sub> /l	Customers' taps
Aldrin	0.03	µg/l	Customers' taps*
Dieldrin	0.03	µg/l	Customers' taps*
Heptachlor	0.03	µg/l	Customers' taps*
Heptachlor epoxide	0.03	µg/l	Customers' taps*



# Appendix 1

Parameters	Concentration or Value (maximum)	Units of Measurement	Point of compliance
Other pesticides	0.1	µg/l	Customers' taps*
Total Pesticides (ii)	0.5	µg/l	Customers' taps*
PAH - Sum of four substances (iii)	0.1	µg/l	Customers' taps
Selenium	10	µg Se/l	Customers' taps
Tetrachloroethene/Trichloroethene - Sum (iv)	10	µg/l	Customers' taps*
Total Trihalomethanes (v)	100	µg/l	Customers' taps
Vinyl chloride	0.50	µg/l	(i)

## Notes:

- (i) The parametric value refers to the residual monomer concentration in the water as calculated according to specifications of the maximum release from the corresponding polymer in contact with the water. This is controlled by product specification.
  - (ii) Total Pesticides: means the sum of the concentrations of the individual pesticides detected and quantified in the monitoring procedure.
  - (iii) The specified compounds are:
    - benzo(b)fluoranthene
    - benzo(k)fluoranthene
    - benzo(ghi)perylene
    - Indeno (1,2,3-cd) pyrene.
  - (iv) The parametric value applies to the sum of the concentrations of the individual compounds detected and quantified in the monitoring process.
  - (v) The specified compounds are:
    - chloroform
    - bromoform
    - dibromochloromethane
    - bromodichloromethane
- \* May be monitored from samples of water leaving treatment works or other supply point, as no significant change during distribution.

# Appendix 1

## Part II: National Requirements

Parameters	Concentration Or Value (Maximum Unless Otherwise Stated)	Units Of Measurement	Point Of Compliance
Aluminium	200	µg Al/l	Customers' taps
Colour	20	mg/l Pt/Co	Customers' taps
Iron	200	µg Fe/l	Customers' taps
Manganese	50	µg Mn/l	Customers' taps
Odour	0	Dilution Number	Customers' taps
Sodium	200	mg Na/l	Customers' taps
Taste	0	Dilution Number	Customers' taps
Tetrachloromethane	3	µg/l	Customers' taps
Turbidity	4	NTU	Customers' taps

## Schedule 2

### Indicator Parameters

Parameters	Specification Concentration or Value (maximum) or State	Units Of Measurement	Point Of Monitoring
Ammonium	0.5	mg NH <sub>4</sub> /l	Customers' taps
Chloride (i)	250	mg Cl/l	Supply point*
Clostridium perfringens (including spores)	0	Number/100ml	Supply point*
Colony counts	No abnormal change	Number/1ml at 22°C Number/1ml at 37°C	Customers' taps, service reservoirs and treatment works
Conductivity (i)	2500	µS/cm at 20°C	Supply point*
Hydrogen ion	9.5	pH value	Customers' taps
	6.5 (minimum)	pH value	
Sulphate (i)	250	mg SO <sub>4</sub> /l	Supply point*
Total indicative dose (for radioactivity) (ii)	0.1	mSv/year	Supply point*
Total organic carbon (TOC)	No abnormal change	mg C/l	Supply point*
Tritium (for radioactivity)	100	Bq/l	Supply point*
Turbidity	1	NTU	Treatment works

### Notes:

(i) The water should not be aggressive.

(ii) Excluding tritium, potassium-40, radon, and radon decay products.

\* May be monitored from samples of water leaving treatment works or other supply point, as no significant change during distribution.

### Explanatory Notes

#### Measurement Units:

Milligram per litre (mg/l) means one part in a million.

Microgram per litre (µg/l) means one part in a thousand million.

#### Parameter:

A parameter refers to any substance, organism or property listed above.

# Appendix 2

## Water Quality Report for Water Supply Zones

Schedule 1 parameters	Units	2022 Samples	No > PCV	% > PCV
Enterococci	No./100ml	432	0	0.00%
E. coli	No./100ml	5568	1	0.02%
1,2 Dichloroethane	µg/l	427	0	0.00%
Aluminium	µg Al/l	2003	4	0.20%
Antimony	µg Sb/l	432	0	0.00%
Arsenic	µg As/l	432	0	0.00%
Benzene	µg/l	427	0	0.00%
Benzo(a)pyrene	ng/l	431	0	0.00%
Boron	µg B/l	432	0	0.00%
Bromate	µg/l	432	0	0.00%
Cadmium	µg Cd/l	432	0	0.00%
Chromium	µg Cr/l	432	0	0.00%
Colour	mg/l Pt/Co	2004	0	0.00%
Copper	mg Cu/l	432	0	0.00%
Fluoride	mg F/l	432	0	0.00%
Iron	µg Fe/l	2003	17	0.85%
Lead	µg Pb/l	432	4	0.93%
Manganese	µg Mn/l	2003	0	0.00%
Mercury	µg Hg/l	430	0	0.00%
Nickel	µg Ni/l	432	2	0.46%
Nitrate	mg NO <sub>3</sub> /l	432	0	0.00%
Nitrite	mg NO <sub>2</sub> /l	432	0	0.00%
Odour	dilution No	1986	1	0.05%
Selenium	µg Se/l	432	0	0.00%
Sodium	mg Na/l	432	0	0.00%
Taste	dilution No	1985	2	0.10%
PAH - Sum of four substances	µg/l	431	0	0.00%
Tetrachloroethene/Trichloroethene - Sum	µg/l	427	0	0.00%
Tetrachloromethane	µg/l	427	0	0.00%
Total Trihalomethanes	µg/l	429	5	1.17%
Turbidity	FTU	2003	0	0.00%

Indicator parameters	Units	2022 Samples	No > PCV	% > PCV
Coliform bacteria	No./100ml	5568	22	0.40%
Total - Residual disinfectant	mg Cl/l	5613	-	-
Free - Residual disinfectant	mg Cl/l	5613	-	-
Colony Counts 37 (48hrs)	No./1 ml	2032	-	-
Colony Counts 22	No./1 ml	2025	-	-
Total Organic Carbon	mg C/l	432	-	-
Ammonium	mg NH <sub>4</sub> /l	432	0	0.00%
Chloride	mg Cl/l	432	0	0.00%
Hydrogen Ion	pH value	2004	0	0.00%
Conductivity	uS/cm 20	2004	0	0.00%
Sulphate	mg SO <sub>4</sub> /l	432	0	0.00%

# Appendix 2

## Water Quality Report for Authorised Supply Points

Schedule 1 parameters	Units	2022 Samples	No > PCV	% > PCV
Cyanide	µg CN/l	239	0	0.00%
Pesticides - Total Substances	µg/l	239	0	0.00%
All other analysed Pesticides	µg/l	239	0	0.00%

Indicator parameters	Units	2022 Samples	No > PCV	% > PCV
Clostridium perfringens (sulph red)	No./100 m	239	0	0.00%
Total Indicative Dose		31	0	0.00%
Tritium	Bq/l	31	0	0.00%

## Water Quality Report for Water Treatment Works

Schedule 1 parameters	Units	2022 Samples	No > PCV	% > PCV
Coliform bacteria	No./100ml	6428	6	0.09%
E. coli	No./100ml	6428	0	0.00%
Nitrite	mg NO <sub>2</sub> /l	239	0	0.00%

Indicator parameters	Units	2022 Samples	No > PVC	% > PVC
Turbidity	FTU	6424	6	0.09%
Total - Residual disinfectant	mg Cl/l	6428	-	-
Free - Residual disinfectant	mg Cl/l	6428	-	-
Colony Counts 37 (48hrs)	No./1 ml	6428	-	-
Colony Counts 22	No./1 ml	6428	-	-

## Water Quality Report for Service Reservoirs

Schedule 1 parameters	Units	2022 Samples	No > PCV	% > PCV
Coliform bacteria	No./100m	14886	17	0.11%
E. coli	No./100ml	14886	1	0.01%

Indicator 1 parameters	Units	2022 Samples	No > PVC	% > PVC
Colony Counts 37 (48hrs)	No./1 ml	14886	-	-
Colony Counts 22	No./1 ml	14886	-	-
Total - Residual disinfectant	mg Cl/l	14886	-	-
Free - Residual disinfectant	mg Cl/l	14886	-	-

## Water Quality by Northern Ireland Council Area

This section of the Drinking Water Quality Report is designed to demonstrate water quality by individual council area based on the Percentage Compliance at Customer Tap (including Supply Points) over the water supply zones associated with that council area, as shown on the associated maps.

For monitoring purposes, NI Water's supply area is divided into water supply zones. These are areas serving not more than 100,000 people, each of which are normally supplied from a single water supply source or combination of sources. There are areas where owing to topography and dispersal of population, it is not practicable to provide a mains water supply. Currently over 99.9% of Northern Ireland's population receive public water supplies.

In a number of cases, water supply zones overlap council boundaries. The council reports indicate which water supply zones are wholly or partially contained within the council areas, including those zones that may have a relatively small area within the council area. Separation of data within these water supply zones across council boundaries is not practicable, therefore the information used in calculating the zonal and council compliance relates to the whole zone and not merely the part included within a council boundary. Following discussions with the Drinking Water Inspectorate, water supply zones with fewer than 40 properties within the council area have not been used to calculate the individual council compliance. The information is based on samples taken randomly from customer taps in each water supply zone and from planned samples at authorised supply points. Due to the nature of random sampling, there may be fluctuations in water quality across the water supply zones.

The report also details Capital Work Programmes affecting the council area, which directly related to water quality during the reporting period.

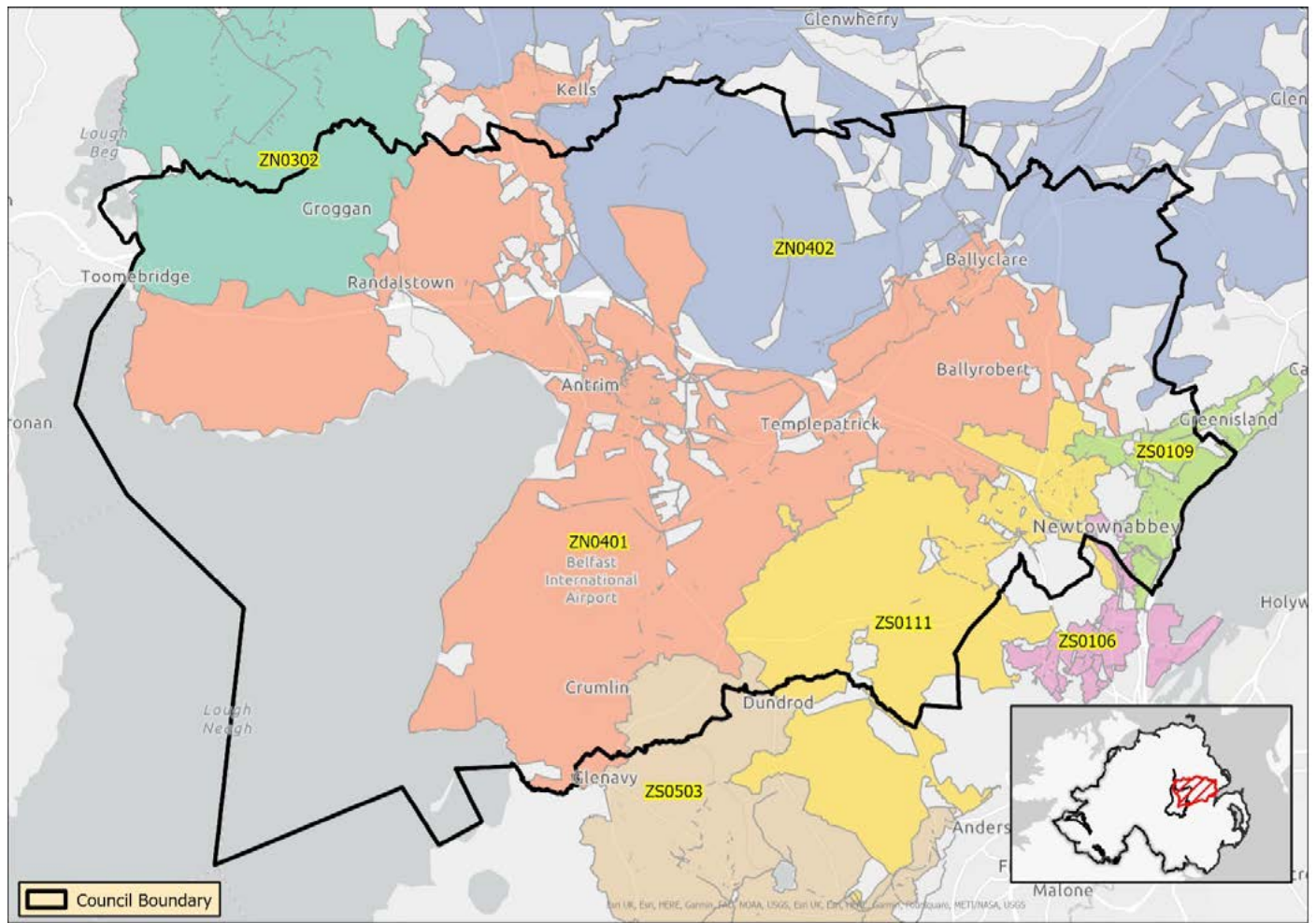
Small variations in water quality compliance performance occur across Northern Ireland. This reflects the need to continue to invest in and to maintain water treatment works, and to improve the water mains network.

A change to the Drinking Water Quality Regulations in 2017 resulted in a reduction of testing frequencies for some parameters at Authorised Supply Points for 2018 onwards. This has slightly lowered the percentage Compliance at Customer Tap at council level but has not affected the overall compliance.

NI Water has identified the need to deliver a significant volume of water mains rehabilitation and other works across its ageing network. The works are necessary to ensure the efficient and cost-effective operation of its water supply system in the immediate future and longer term as well as ensuring adequate levels of water quality and customer supply. To achieve this goal, NI Water has implemented a Water mains Rehabilitation Framework, within which it undertakes work on a Northern Ireland wide basis as identified by the zonal study programme of work.

# Appendix 3

## Antrim and Newtownabbey Borough Council



### Percentage Compliance at Customer Tap (including Supply Points)

	Target	2017	2018	2019	2020	2021	2022
Northern Ireland Compliance	99.7%	99.8%	99.8%	99.8%	99.9%	99.9%	99.9%
Antrim and Newtownabbey Compliance	99.7%	99.9%	99.9%	99.8%	100.0%	99.9%	99.9%

### 2022 water supply zones wholly or partially within the council area:

Zone Code	Zone Name	Zone Code	Zone Name
ZN0302	Dungonnell Glarryford	ZS0109	Dorisland Whiteabbey
ZN0401	Dunore Point Antrim	ZS0111	Dunore Point Hydepark
ZN0402	Killylane Ballynure	ZS0503	Forked Bridge Stoneyford
ZS0106	Dunore Belfast North		

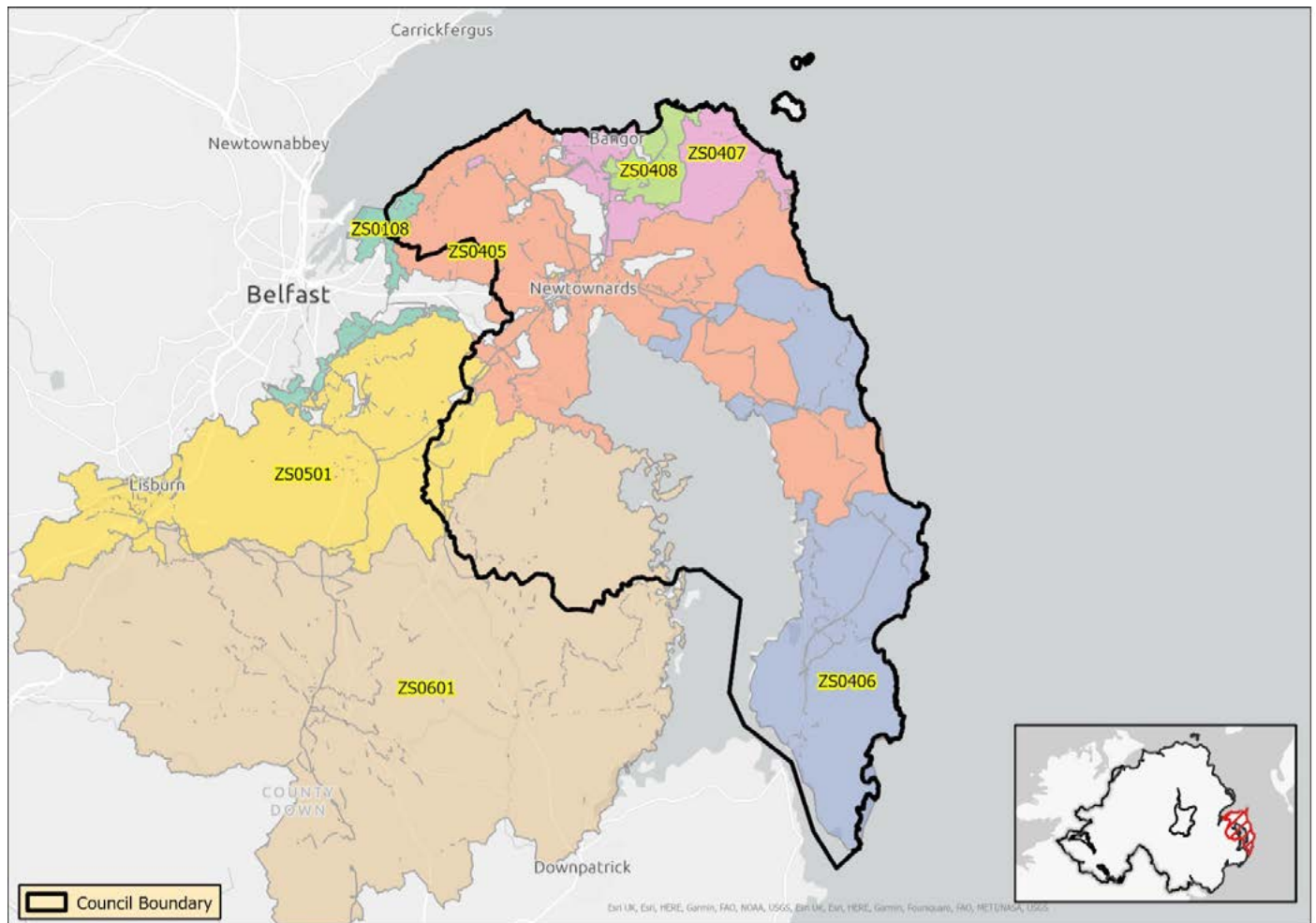
# Appendix 3

## 2022 water quality Capital Works Programmes affecting the council area:

2021 Drought Mitigation Project  
Abstraction Monitoring  
Antrim South WIIM 2.1 Work Package  
Backsiphonage at WTW  
Clean Water Network Modelling 2021 to 2024  
DS14120 - Watermain - Belmont Road Antrim  
DS33565 - Hightown Road, Glengormley Watermain Upgrade  
Eastern Superworkpackage Phase 2  
Facilities Management Review  
Feasibility Study for using Groundwater Abstraction  
High Demand - External Modelling  
Lismacloskey Road Watermain Rehabilitation  
MIMP Central (Major Incident Mitigation Project Central Region) Freeze Thaw Improvements  
MIMP East (Major Incident Mitigation Project East Region) Freeze Thaw Improvements  
Newtownabbey Zone Watermain Improvements Phase 3  
NIAMP5 Project Support  
Northern Water Resource Zone - Resilience  
Owner Controlled Insurance Programme (OCIP)  
PC15 Lead Communication Pipe Replacement Programme  
PC15 Year 1 Base Maintenance - Chlorine Dosing Sites  
PC27 Water Treatability optimisation pilot plant  
Preparation of Initial Work packages for PC21  
Professional Services - PC21 Watermain Rehabilitation, New and Replacement and First Time Services  
Professional Services Framework Watermain Network PC15  
SEMD Surveys PC10 Water  
Service Reservoir Security Phase 1  
Trunkmain Rehab PC21 Year 1  
Water Efficiency and Innovation Support Services  
Water Resource & Supply Resilience Plan  
Watermain New - Lead Pipe Replacement Programme  
Watermain Rehabilitation, New & Replacement Incorporating First Time Services - Professional Fees  
WIIM Phase 2 Dunore East WP

# Appendix 3

## Ards and North Down Borough Council



### Percentage Compliance at Customer Tap (including Supply Points)

	Target	2017	2018	2019	2020	2021	2022
Northern Ireland Compliance	99.7%	99.8%	99.8%	99.8%	99.9%	99.9%	99.9%
Ards and North Down Compliance	99.7%	99.9%	99.9%	99.9%	99.9%	100.0%	99.9%

### 2022 water supply zones wholly or partially within the council area:

Zone Code	Zone Name	Zone Code	Zone Name
ZS0108	Belfast Purdysburn	ZS0408	Drumaroad Bangor East
ZS0405	Drumaroad Ards West	ZS0501	Drumaroad Lisburn
ZS0406	Drumaroad Portaferry	ZS0601	Drumaroad Ballynahinch
ZS0407	Drumaroad Bangor West		



# Appendix 3

## 2022 water quality Capital Works Programmes affecting the council area:

2021 Drought Mitigation Project

Abstraction Monitoring

Backsiphonage at WTW

Bangor Road, Holywood, Watermain Extension

Clean Water Network Modelling 2021 to 2024

Eastern Superworkpackage Phase 2

Facilities Management Review

Feasibility Study for using Groundwater Abstraction

High Demand - External Modelling

MIMP East (Major Incident Mitigation Project East Region) Freeze Thaw Improvements

NIAMP5 Project Support

Owner Controlled Insurance Programme (OCIP)

PC15 Lead Communication Pipe Replacement Programme

PC15 Year 1 Base Maintenance - Chlorine Dosing Sites

PC27 Water Treatability optimisation pilot plant

Preparation of Initial Work packages for PC21

Professional Services - PC21 Watermain Rehabilitation, New and Replacement and First Time Services

Professional Services Framework Watermain Network PC15

SEMD Surveys PC10 Water

Service Reservoir Security Phase 1

Trunkmain Rehab PC21 Year 1

Water Efficiency and Innovation Support Services

Water Resource & Supply Resilience Plan

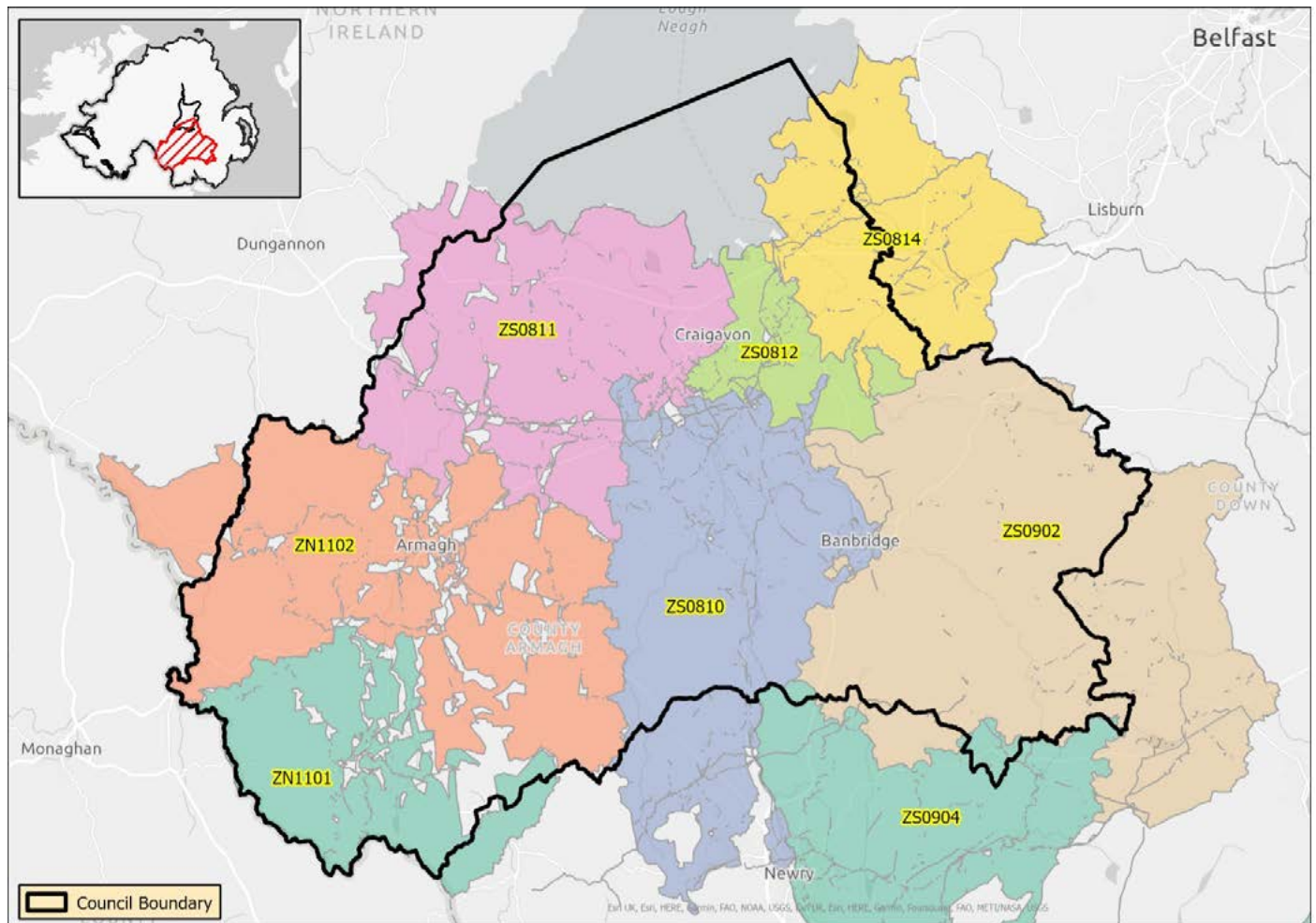
Watermain New - Lead Pipe Replacement Programme

Watermain Rehabilitation, New & Replacement Incorporating First Time Services - Professional Fees

Whitespots Trunkmain

# Appendix 3

## Armagh City, Banbridge and Craigavon Borough Council



### Percentage Compliance at Customer Tap (including Supply Points)

	Target	2017	2018	2019	2020	2021	2022
Northern Ireland Compliance	99.7%	99.8%	99.8%	99.8%	99.9%	99.9%	99.9%
Armagh, Banbridge & Craigavon Compliance	99.7%	99.9%	99.9%	99.9%	99.9%	99.7%	99.9%

### 2022 water supply zones wholly or partially within the council area:

Zone Code	Zone Name	Zone Code	Zone Name
ZN1101	Clay Lake Keady	ZS0812	Castor Bay Craigavon East
ZN1102	Seagahan Armagh	ZS0814	Castor Bay Moira
ZS0810	Castor Bay Tandragee	ZS0902	Fofanny Dromore
ZS0811	Castor Bay Portadown	ZS0904	Fofanny Mourne

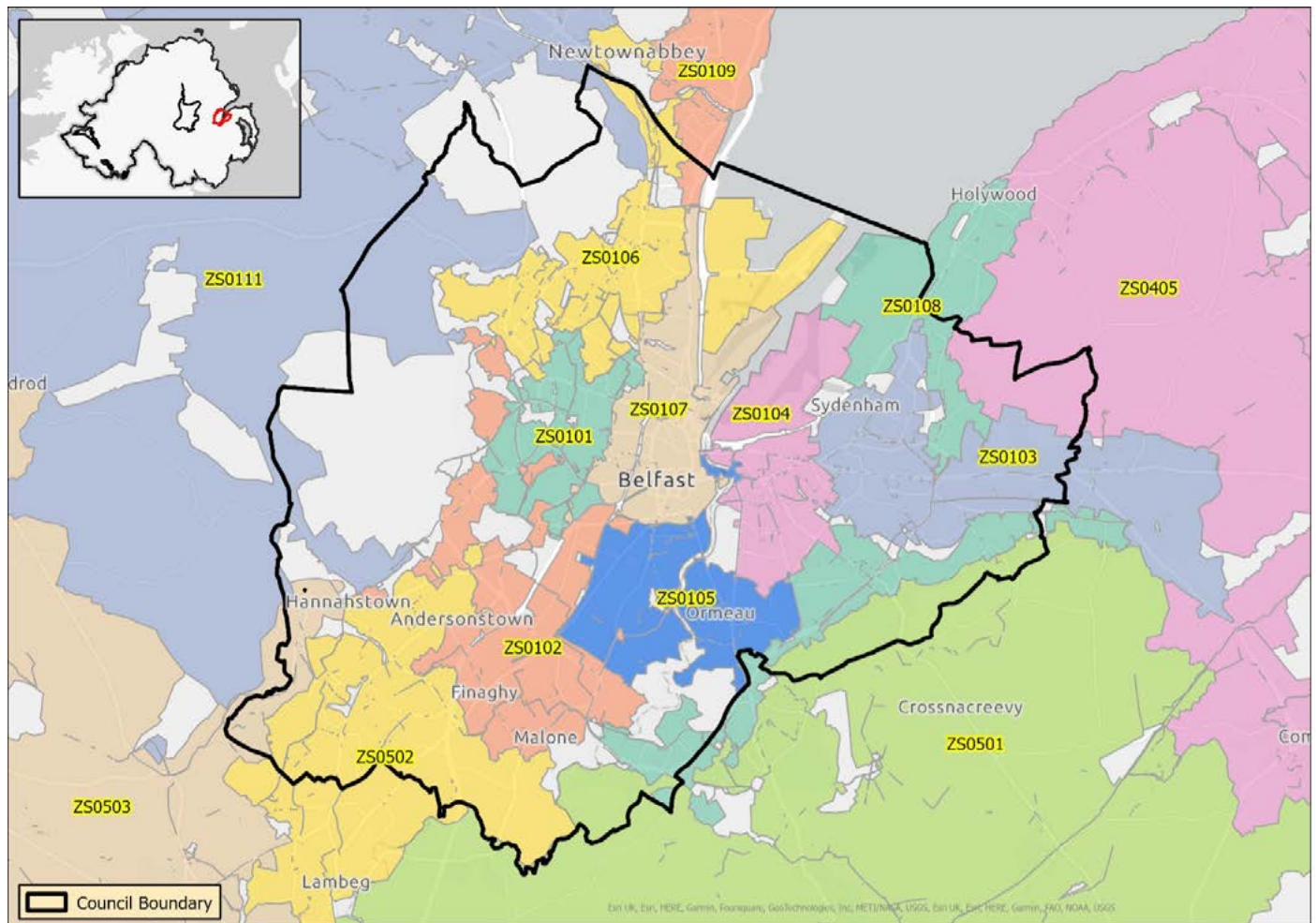
# Appendix 3

## 2022 water quality Capital Works Programmes affecting the council area:

2021 Drought Mitigation Project  
Abstraction Monitoring  
Backsyphonage at WTW  
Banbridge South Armagh WIIM 2.1 Work Package  
Castor Bay Outage  
Castor Bay to Ballydougan Trunk Main  
Castor Bay to Dungannon Strategic Trunk Mains  
Clean Water Network Modelling 2021 to 2024  
Craigavon WIIM 2.1 Work Package  
CWT - Seagahan  
Facilities Management Review  
Feasibility Study for using Groundwater Abstraction  
High Demand - External Modelling  
Lurgan Moira WIIM 2.1 Work Package  
NIAMP5 Project Support  
Owner Controlled Insurance Programme (OCIP)  
PC15 Lead Communication Pipe Replacement Programme  
PC15 Year 1 Base Maintenance - Chlorine Dosing Sites  
PC27 Water Treatability optimisation pilot plant  
Preparation of Initial Work packages for PC21  
Professional Services - PC21 Watermain Rehabilitation, New and Replacement and First Time Services  
Professional Services Framework Watermain Network PC15  
SEMD Surveys PC10 Water  
Service Reservoir Security Phase 1  
Slaterock Watermain Scheme  
Trunkmain Rehab PC21 Year 1  
Water Efficiency and Innovation Support Services  
Water Resource & Supply Resilience Plan  
Watermain New - Lead Pipe Replacement Programme  
Watermain Rehabilitation, New & Replacement Incorporating First Time Services - Professional Fees

# Appendix 3

## Belfast City Council



### Percentage Compliance at Customer Tap (including Supply Points)

	Target	2017	2018	2019	2020	2021	2022
Northern Ireland Compliance	99.7%	99.8%	99.8%	99.8%	99.9%	99.9%	99.9%
Belfast Compliance	99.7%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%

### 2022 water supply zones wholly or partially within the council area:

Zone Code	Zone Name	Zone Code	Zone Name
ZS0101	Dunore Ballygomartin North	ZS0108	Belfast Purdysburn
ZS0102	Dunore Ballygomartin South	ZS0109	Dorisland Whiteabbey
ZS0103	Belfast Ballyhanwood	ZS0111	Dunore Point Hydepark
ZS0104	Belfast Breda North	ZS0405	Drumroad Ards West
ZS0105	Belfast Breda South	ZS0501	Drumroad Lisburn
ZS0106	Dunore Belfast North	ZS0502	Forked Bridge Dunmurry
ZS0107	Belfast Oldpark	ZS0503	Forked Bridge Stoneyford

# Appendix 3

## 2022 water quality Capital Works Programmes affecting the council area:

2021 Drought Mitigation Project

Abstraction Monitoring

Backsiphonage at WTW

Clean Water Network Modelling 2021 to 2024

Eastern Superworkpackage Phase 2

Facilities Management Review

High Demand - External Modelling

MIMP East (Major Incident Mitigation Project East Region) Freeze Thaw Improvements

NIAMP5 Project Support

Owner Controlled Insurance Programme (OCIP)

PC15 Lead Communication Pipe Replacement Programme

PC15 Year 1 Base Maintenance - Chlorine Dosing Sites

PC27 Water Treatability optimisation pilot plant

Preparation of Initial Work packages for PC21

Professional Services - PC21 Watermain Rehabilitation, New and Replacement and First Time Services

Professional Services Framework Watermain Network PC15

SEMD Surveys PC10 Water

Service Reservoir Security Phase 1

Trunkmain Rehab PC21 Year 1

Water Efficiency and Innovation Support Services

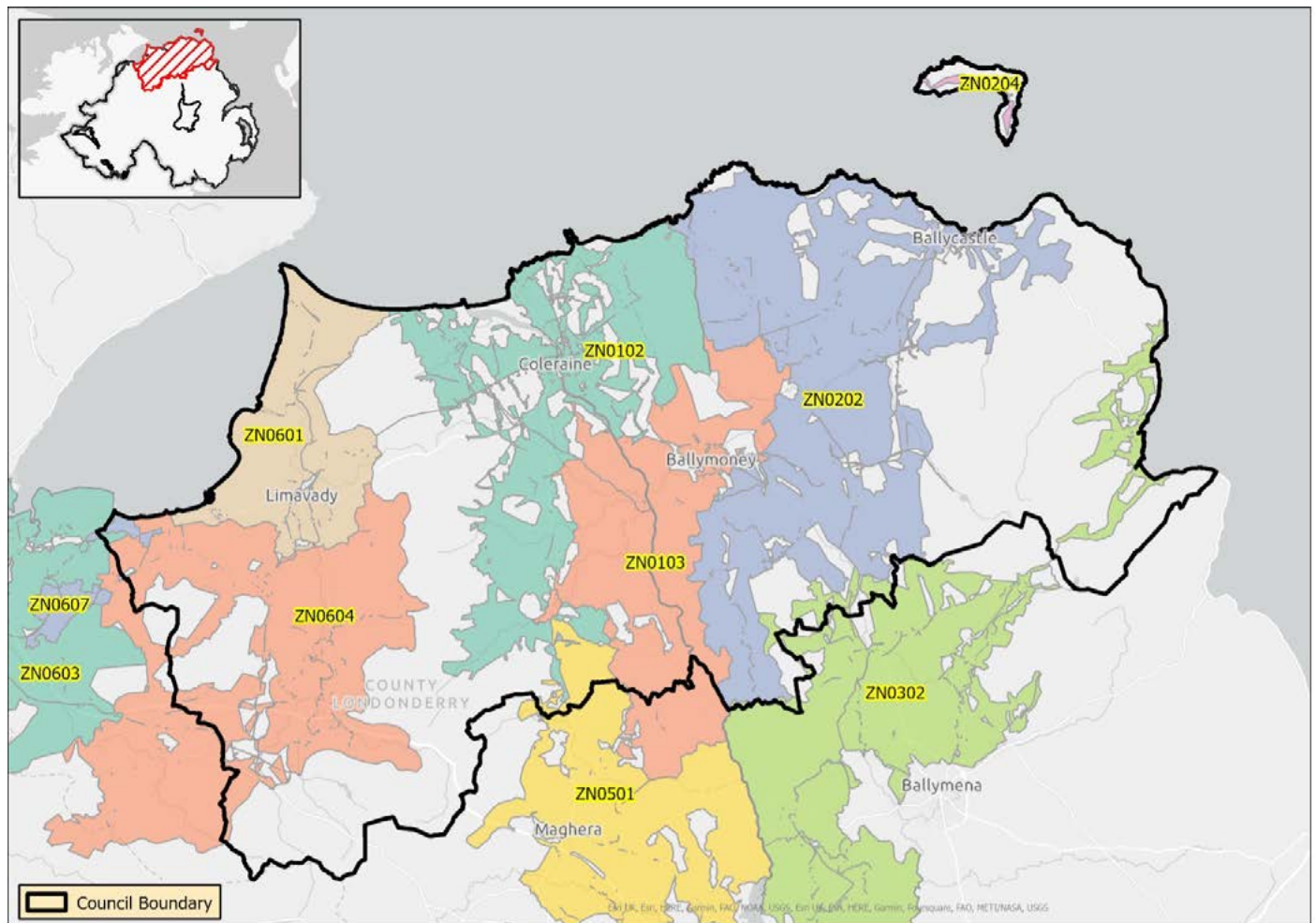
Water Resource & Supply Resilience Plan

Watermain New - Lead Pipe Replacement Programme

Watermain Rehabilitation, New & Replacement Incorporating First Time Services - Professional Fees

# Appendix 3

## Causeway Coast and Glens Borough Council



### Percentage Compliance at Customer Tap (including Supply Points)

	Target	2017	2018	2019	2020	2021	2022
Northern Ireland Compliance	99.7%	99.8%	99.8%	99.8%	99.9%	99.9%	99.9%
Causeway Coast and Glens Compliance	99.7%	99.9%	99.8%	99.8%	99.9%	99.7%	99.8%

### 2022 water supply zones wholly or partially within the council area:

Zone Code	Zone Name	Zone Code	Zone Name
ZN0102	Ballinrees West	ZN0501	Moyola Magherafelt
ZN0103	Ballinrees East	ZN0601	Ballinrees Limavady
ZN0202	Altnahinch Bushmills	ZN0603	Carmoney Eglinton
ZN0204	Rathlin Island	ZN0604	Caugh Hill Dungiven
ZN0302	Dungonnell Glarryford	ZN0607	Corrody Derry

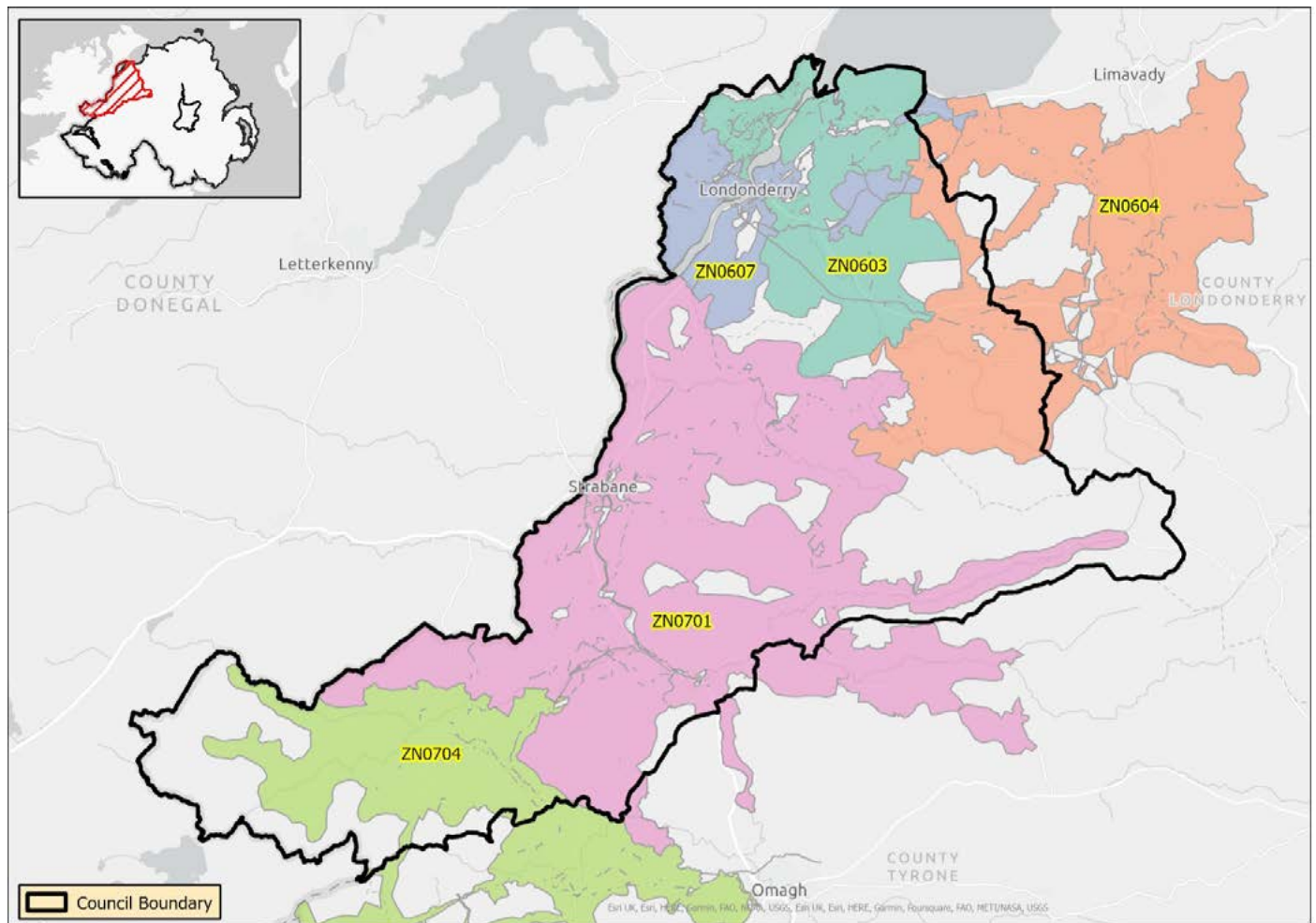
# Appendix 3

## 2022 water quality Capital Works Programmes affecting the council area:

2021 Drought Mitigation Project  
A6 Dungiven Drumahoe  
Abstraction Monitoring  
Altnahinch Pilot Plant Study  
Antrim North WIIM 2.1 Work Package  
Backsyphonage at WTW  
Clean Water Network Modelling 2021 to 2024  
Facilities Management Review  
High Demand - External Modelling  
NIAMP5 Project Support  
Northern Water Resource Zone - Resilience  
Owner Controlled Insurance Programme (OCIP)  
PC15 Lead Communication Pipe Replacement Programme  
PC15 Year 1 Base Maintenance - Chlorine Dosing Sites  
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Water Resource & Supply Resilience Plan  
Watermain New - Lead Pipe Replacement Programme  
Watermain Rehabilitation, New & Replacement Incorporating First Time Services - Professional Fees  
WIIM Phase 2 Ballinrees Limavady WP

# Appendix 3

## Derry City and Strabane District Council



### Percentage Compliance at Customer Tap (including Supply Points)

	Target	2017	2018	2019	2020	2021	2022
Northern Ireland Compliance	99.7%	99.8%	99.8%	99.8%	99.9%	99.9%	99.9%
Derry City & Strabane Compliance	99.7%	99.9%	99.8%	99.8%	99.9%	99.7%	99.7%

### 2022 water supply zones wholly or partially within the council area:

Zone Code	Zone Name	Zone Code	Zone Name
ZN0603	Carmoney Eglinton	ZN0701	Derg Strabane
ZN0604	Caugh Hill Dungiven	ZN0704	Lough Bradan Drumquin
ZN0607	Corrody Derry		



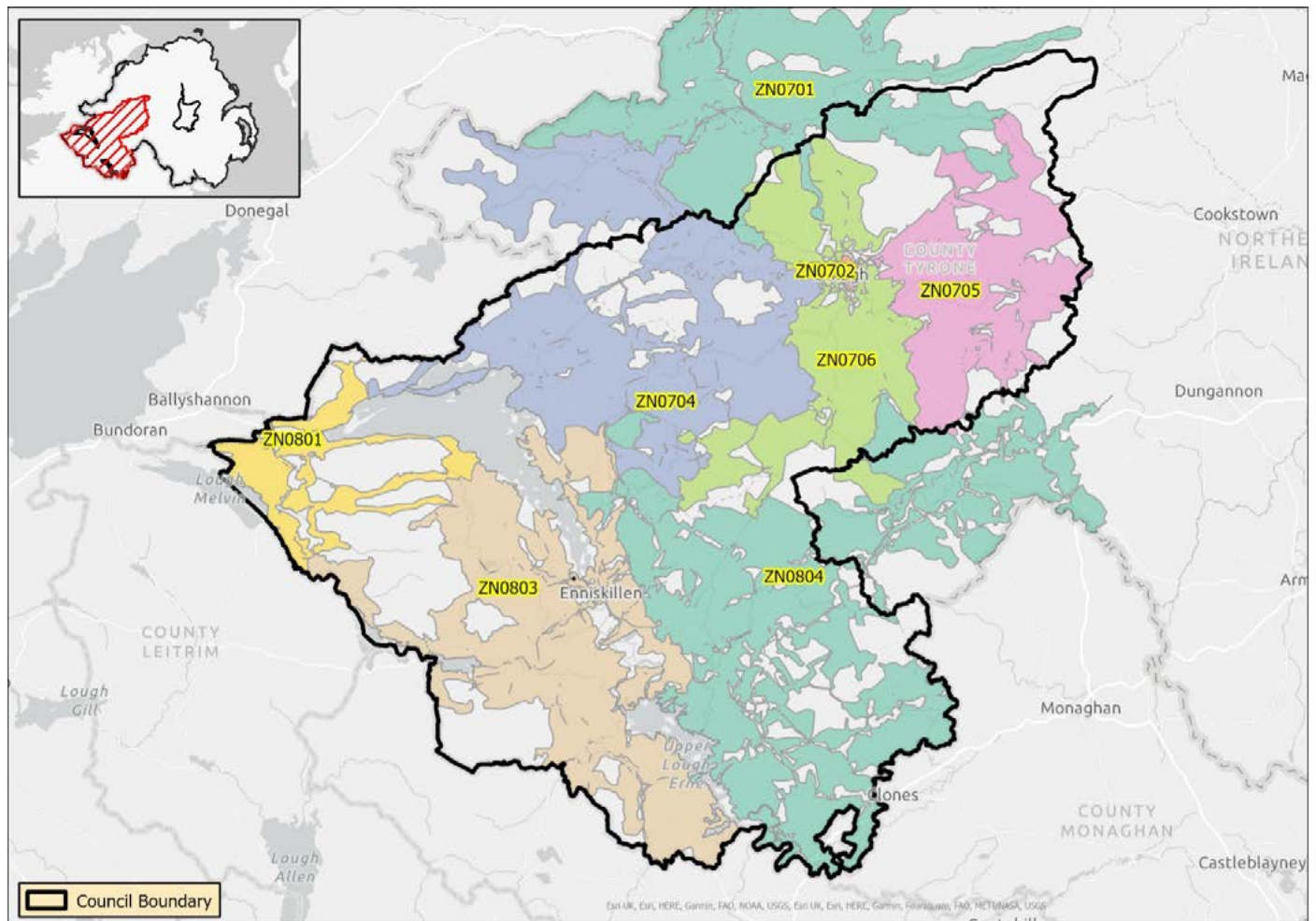
# Appendix 3

## 2022 water quality Capital Works Programmes affecting the council area:

2021 Drought Mitigation Project  
A6 Dungiven Drumahoe  
Abstraction Monitoring  
Backsiphonage at WTW  
Buncrana Road / Skeoge Link Trunk Main  
Caugh Hill, Carmoney to Strabane Strategic Link Watermain  
Clean Water Network Modelling 2021 to 2024  
Crescent Link Trunk Main  
Derg WTW MCPA PEO Undertakings  
Facilities Management Review  
Feasibility Study for using Groundwater Abstraction  
High Demand - External Modelling  
NIAMP5 Project Support  
Omagh Phase 2 Watermain Rehab  
Owner Controlled Insurance Programme (OCIP)  
PC15 Lead Communication Pipe Replacement Programme  
PC15 Year 1 Base Maintenance - Chlorine Dosing Sites  
PC27 Water Treatability optimisation pilot plant  
Preparation of Initial Work packages for PC21  
Professional Services - PC21 Watermain Rehabilitation, New and Replacement and First Time Services  
Professional Services Framework Watermain Network PC15  
SEMD Surveys PC10 Water  
Service Reservoir Security Phase 1  
Trunkmain Rehab PC21 Year 1  
Water Efficiency and Innovation Support Services  
Water Resource & Supply Resilience Plan  
Watermain New - Lead Pipe Replacement Programme  
Watermain Rehabilitation, New & Replacement Incorporating First Time Services - Professional Fees

# Appendix 3

## Fermanagh and Omagh District Council



### Percentage Compliance at Customer Tap (including Supply Points)

	Target	2017	2018	2019	2020	2021	2022
Northern Ireland Compliance	99.7%	99.8%	99.8%	99.8%	99.9%	99.9%	99.9%
Fermanagh & Omagh Compliance	99.7%	99.9%	99.8%	99.9%	99.9%	99.8%	99.9%

### 2022 water supply zones wholly or partially within the council area:

Zone Code	Zone Name	Zone Code	Zone Name
ZN0701	Derg Strabane	ZN0706	Lough Macrory Killyclogher
ZN0702	Glenhordial Omagh	ZN0801	Belleek Garrison
ZN0704	Lough Bradan Drumquin	ZN0803	Killyhevlin West
ZN0705	Lough Macrory Beragh	ZN0804	Killyhevlin East

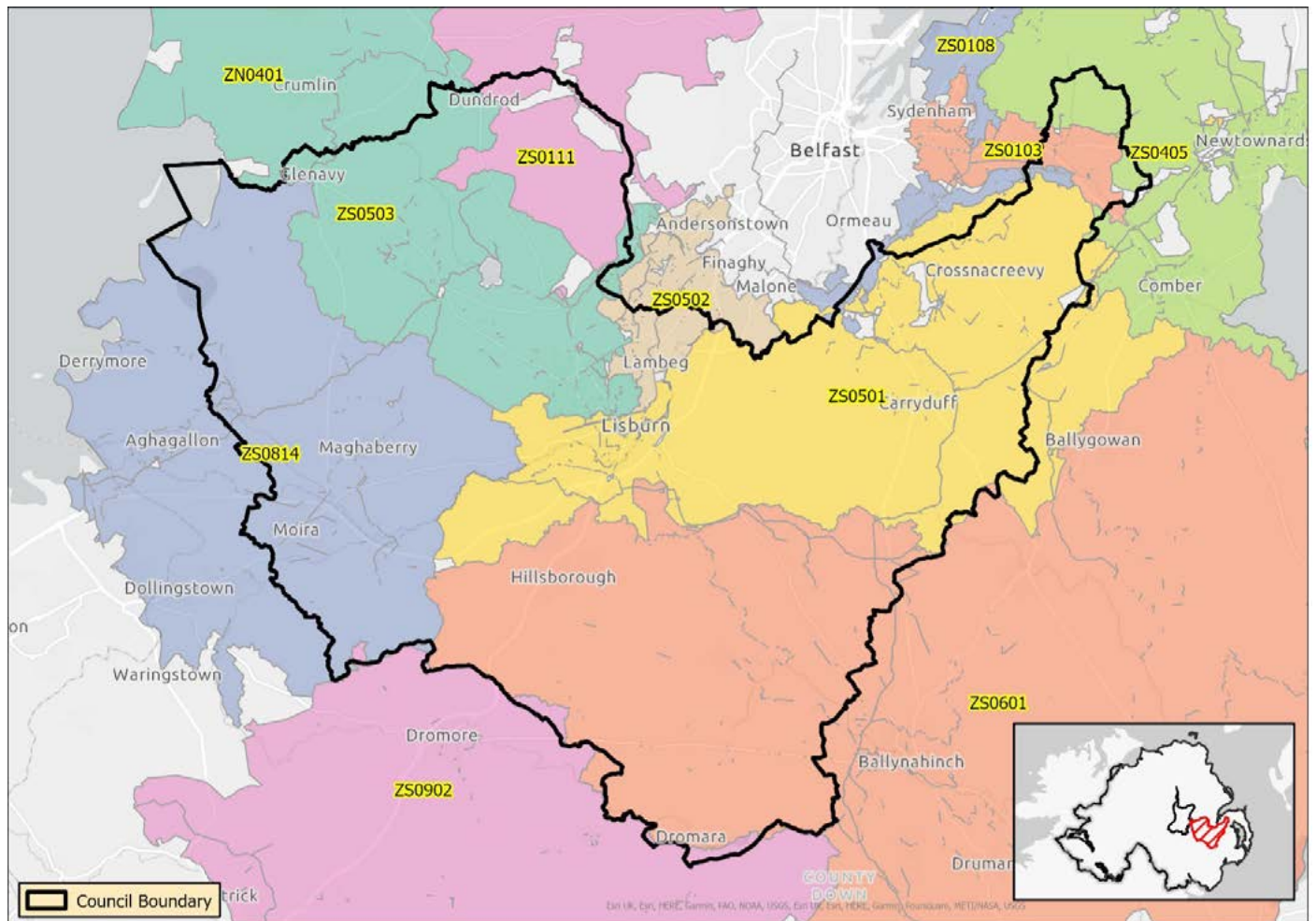
# Appendix 3

## 2022 water quality Capital Works Programmes affecting the council area:

2021 Drought Mitigation Project  
Abstraction Monitoring  
Alleyhill to Doochrock Watermain  
Backsyphonage at WTW  
Clean Water Network Modelling 2021 to 2024  
Derg Treatability Improvements  
Facilities Management Review  
Fermanagh North WIIM 2.1 Work Package  
High Demand - External Modelling  
Killyhevlin Clear Water Tank  
Killyhevlin to Cavanacross Trunk Main  
NIAMP5 Project Support  
Omagh Phase 2 Watermain Rehab  
Owner Controlled Insurance Programme (OCIP)  
PC 21 Western Resource Zone - Resilience  
PC15 Lead Communication Pipe Replacement Programme  
PC15 Year 1 Base Maintenance - Chlorine Dosing Sites  
PC27 Water Treatability optimisation pilot plant  
Preparation of Initial Work packages for PC21  
Professional Services - PC21 Watermain Rehabilitation, New and Replacement and First Time Services  
Professional Services Framework Watermain Network PC15  
SEMD Surveys PC10 Water  
Service Reservoir - Loughmacrory Hill  
Service Reservoir Security Phase 1  
Trunkmain Rehab PC21 Year 1  
Tyrone South WIIM 2.1 Work Package  
Water Efficiency and Innovation Support Services  
Water Resource & Supply Resilience Plan  
Watermain New - Lead Pipe Replacement Programme  
Watermain Rehabilitation, New & Replacement Incorporating First Time Services - Professional Fees  
WIIM Phase 2 Loughmacrory WP

# Appendix 3

## Lisburn and Castlereagh City Council



### Percentage Compliance at Customer Tap (including Supply Points)

	Target	2017	2018	2019	2020	2021	2022
Northern Ireland Compliance	99.7%	99.8%	99.8%	99.8%	99.9%	99.9%	99.9%
Lisburn & Castlereagh Compliance	99.7%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%

### 2022 water supply zones wholly or partially within the council area:

Zone Code	Zone Name	Zone Code	Zone Name
ZN0401	Dunore Point Antrim	ZS0502	Forked Bridge Dunmurry
ZS0103	Belfast Ballyhanwood	ZS0503	Forked Bridge Stoneyford
ZS0108	Belfast Purdysburn	ZS0601	Drummaroad Ballynahinch
ZS0111	Dunore Point Hydepark	ZS0814	Castor Bay Moira
ZS0405	Drummaroad Ards West	ZS0902	Fofanny Dromore
ZS0501	Drummaroad Lisburn		

# Appendix 3

## 2022 water quality Capital Works Programmes affecting the council area:

2021 Drought Mitigation Project

Abstraction Monitoring

AFM Feasibility trials and filter trial unit modifications

Backsiphonage at WTW

Clean Water Network Modelling 2021 to 2024

Drummaroad Treatability Improvements

Eastern Superworkpackage Phase 2

Facilities Management Review

High Demand - External Modelling

Hillsborough Forest Park Watermain Extension

Lurgan Moira WIIM 2.1 Work Package

MIMP East (Major Incident Mitigation Project East Region) Freeze Thaw Improvements

NIAMP5 Project Support

Owner Controlled Insurance Programme (OCIP)

PC15 Lead Communication Pipe Replacement Programme

PC15 Year 1 Base Maintenance - Chlorine Dosing Sites

PC27 Water Treatability optimisation pilot plant

Preparation of Initial Work packages for PC21

Professional Services - PC21 Watermain Rehabilitation, New and Replacement and First Time Services

Professional Services Framework Watermain Network PC15

SEMD Surveys PC10 Water

Service Reservoir Security Phase 1

Sprucefield Park and Ride Watermain Extension

Trunkmain Rehab PC21 Year 1

Water Efficiency and Innovation Support Services

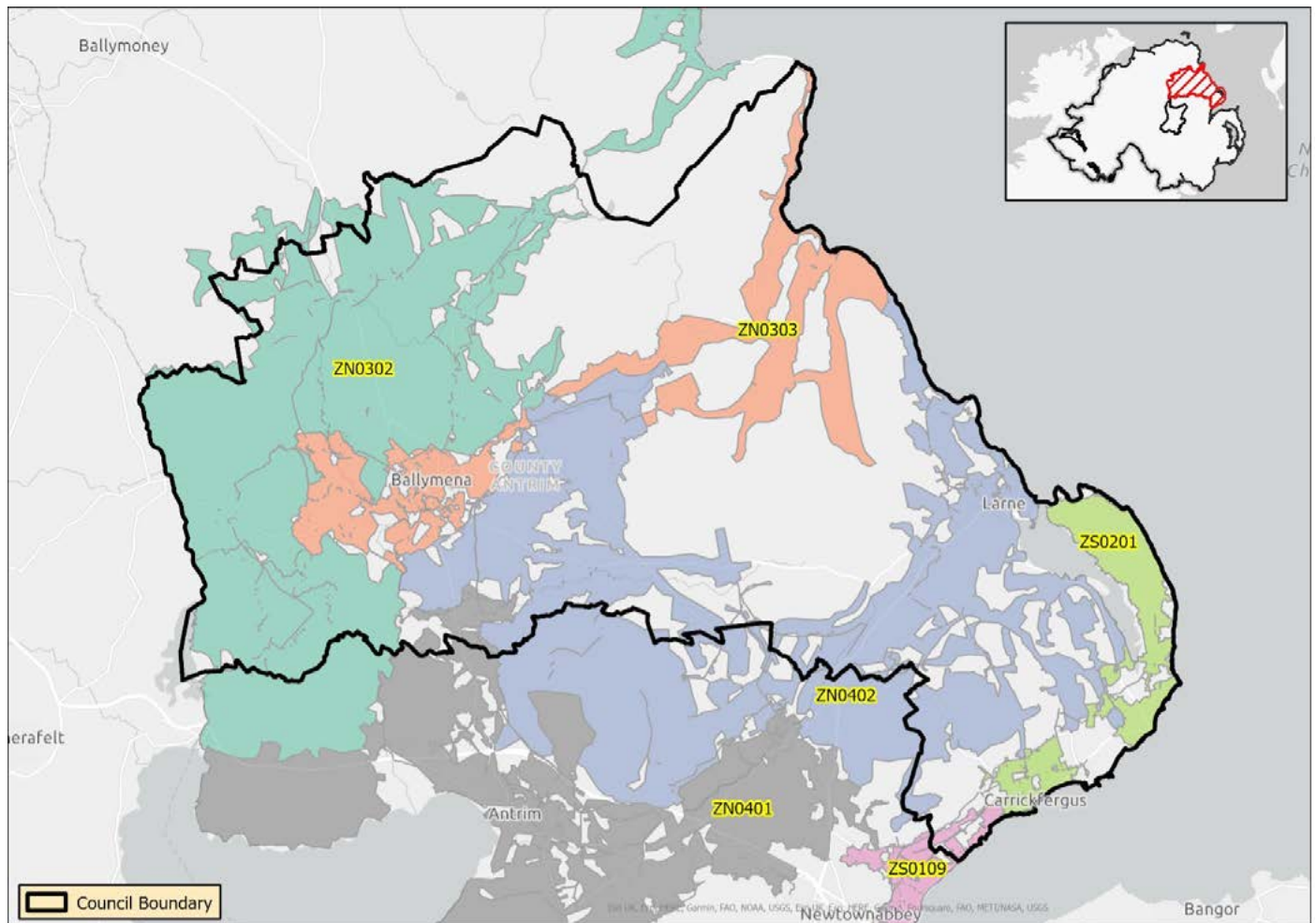
Water Resource & Supply Resilience Plan

Watermain New - Lead Pipe Replacement Programme

Watermain Rehabilitation, New & Replacement Incorporating First Time Services - Professional Fees

# Appendix 3

## Mid and East Antrim Borough Council



### Percentage Compliance at Customer Tap (including Supply Points)

	Target	2017	2018	2019	2020	2021	2022
Northern Ireland Compliance	99.7%	99.8%	99.8%	99.8%	99.9%	99.9%	99.9%
Mid & East Antrim Compliance	99.7%	99.9%	99.9%	99.8%	100.0%	99.9%	99.9%

### 2022 water supply zones wholly or partially within the council area:

Zone Code	Zone Name	Zone Code	Zone Name
ZN0302	Dungonnell Glarryford	ZN0402	Killylane Ballynure
ZN0303	Dunore Point Ballymena	ZS0109	Dorisland Whiteabbey
ZN0401	Dunore Point Antrim	ZS0201	Dorisland Carrick

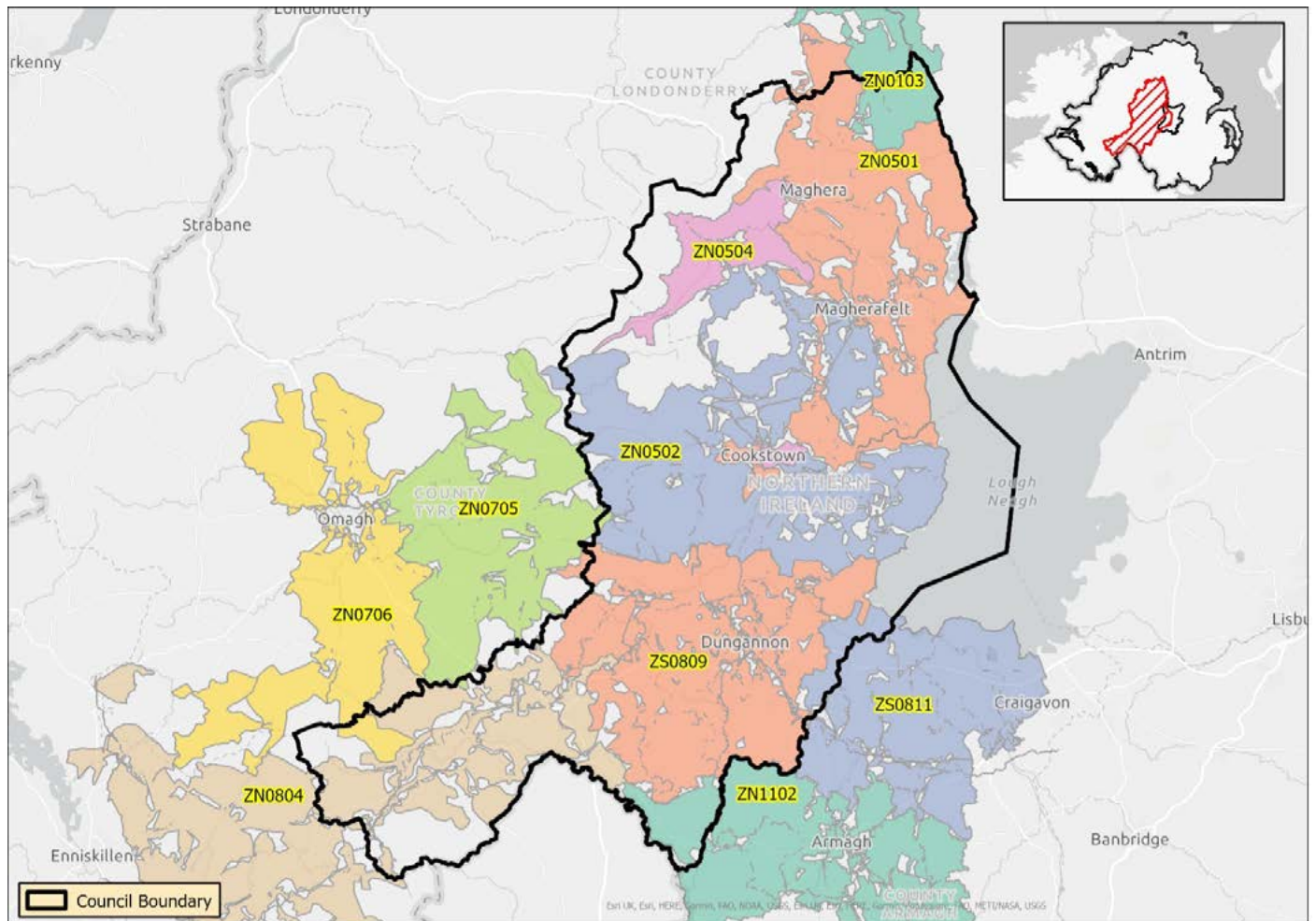
# Appendix 3

## 2022 water quality Capital Works Programmes affecting the council area:

2021 Drought Mitigation Project  
Abstraction Monitoring  
Antrim North WIIM 2.1 Work Package  
Antrim South WIIM 2.1 Work Package  
Backsyphonage at WTW  
Clean Water Network Modelling 2021 to 2024  
Dorisland WTW treatability recommended improvements.  
Facilities Management Review  
Feasibility Study for using Groundwater Abstraction  
High Demand - External Modelling  
MIMP Central (Major Incident Mitigation Project Central Region) Freeze Thaw Improvements  
MIMP East (Major Incident Mitigation Project East Region) Freeze Thaw Improvements  
NIAMP5 Project Support  
Owner Controlled Insurance Programme (OCIP)  
Parkmore Water Pumping Station Relocation  
PC15 Lead Communication Pipe Replacement Programme  
PC15 Year 1 Base Maintenance - Chlorine Dosing Sites  
PC27 Water Treatability optimisation pilot plant  
Preparation of Initial Work packages for PC21  
Professional Services - PC21 Watermain Rehabilitation, New and Replacement and First Time Services  
Professional Services Framework Watermain Network PC15  
SEMD Surveys PC10 Water  
Service Reservoir Security Phase 1  
Trunkmain Rehab PC21 Year 1  
Water Efficiency and Innovation Support Services  
Water Resource & Supply Resilience Plan  
Watermain New - Lead Pipe Replacement Programme  
Watermain Rehabilitation, New & Replacement Incorporating First Time Services - Professional Fees

# Appendix 3

## Mid-Ulster District Council



### Percentage Compliance at Customer Tap (including Supply Points)

	Target	2017	2018	2019	2020	2021	2022
Northern Ireland Compliance	99.7%	99.8%	99.8%	99.8%	99.9%	99.9%	99.9%
Mid-Ulster Compliance	99.7%	99.9%	99.9%	99.9%	99.9%	99.8%	99.9%

### 2022 water supply zones wholly or partially within the council area:

Zone Code	Zone Name	Zone Code	Zone Name
ZN0103	Ballinrees East	ZN0706	Lough Macrory Killyclogher
ZN0501	Moyola Magherafelt	ZN0804	Killyhevlin East
ZN0502	Lough Fea Cookstown	ZN1102	Seagahan Armagh
ZN0504	Moyola Unagh Mormeal	ZS0809	Castor Bay Dungannon
ZN0705	Lough Macrory Beragh	ZS0811	Castor Bay Portadown



# Appendix 3

## 2022 water quality Capital Works Programmes affecting the council area:

2021 Drought Mitigation Project

Abstraction Monitoring

AFM Feasibility trials and filter trial unit modifications

Altmore Phase 2 Watermain Rehabilitation

Antrim North WIIM 2.1 Work Package

Backsyphonage at WTW

Castor Bay to Dungannon Strategic Trunk Mains

Central Water Resource Zone - Resilience and Supply

Clean Water Network Modelling 2021 to 2024

Facilities Management Review

Falgotreavy Road, Maghera, Watermain Replacement

Feasibility Study for using Groundwater Abstraction

Granville Dungannon Invest NI Watermain Extension

High Demand - External Modelling

Lough Fea CWB Capacity Increase

MIMP Central (Major Incident Mitigation Project Central Region) Freeze Thaw Improvements

NIAMP5 Project Support

Omagh Phase 2 Watermain Rehab

Owner Controlled Insurance Programme (OCIP)

PC15 Lead Communication Pipe Replacement Programme

PC15 Year 1 Base Maintenance - Chlorine Dosing Sites

PC27 Water Treatability optimisation pilot plant

Preparation of Initial Work packages for PC21

Professional Services - PC21 Watermain Rehabilitation, New and Replacement and First Time Services

Professional Services Framework Watermain Network PC15

SEMD Surveys PC10 Water

Service Reservoir Security Phase 1

Trunkmain Rehab PC21 Year 1

Water Efficiency and Innovation Support Services

Water Resource & Supply Resilience Plan

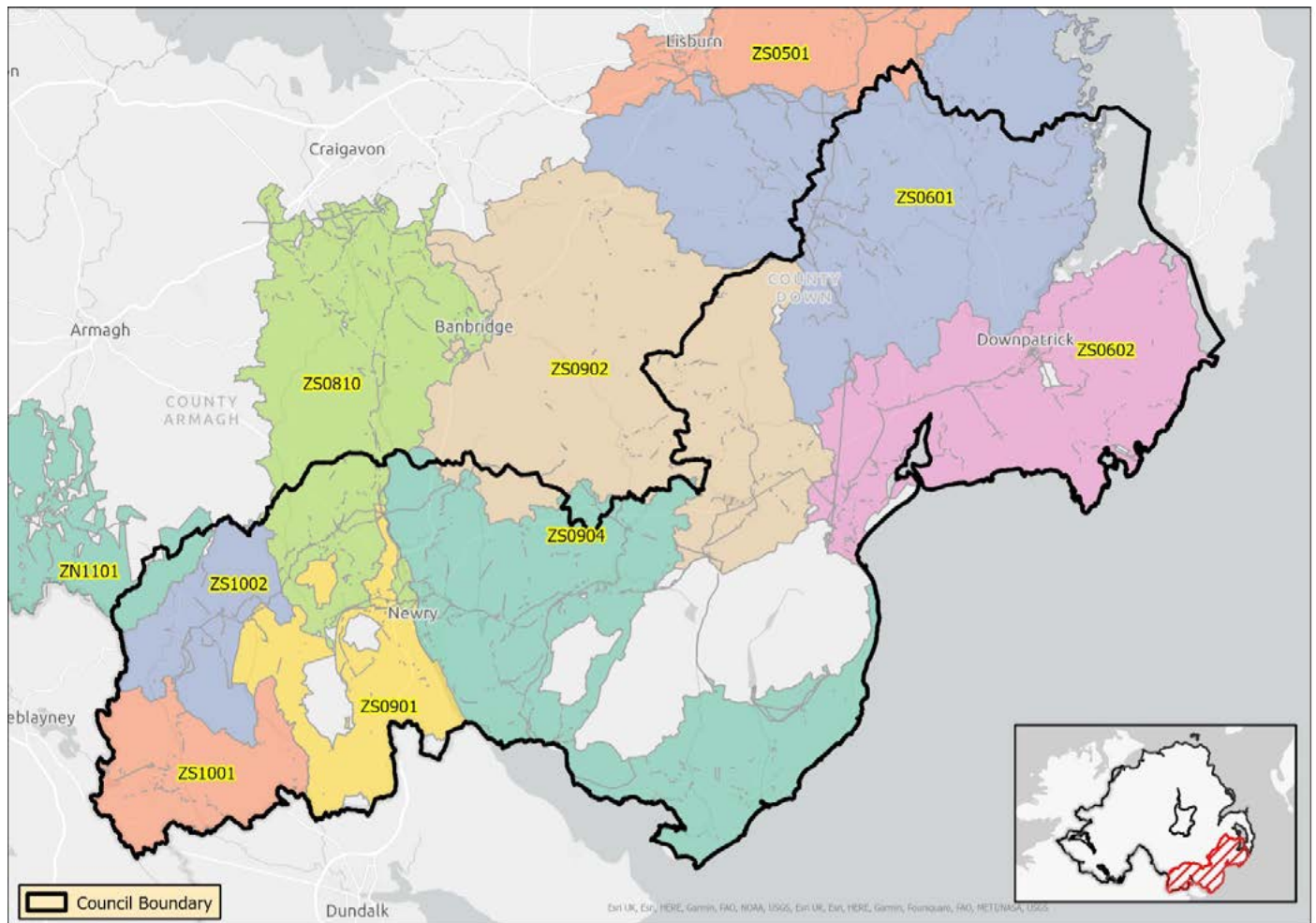
Watermain New - Lead Pipe Replacement Programme

Watermain Rehabilitation, New & Replacement Incorporating First Time Services - Professional Fees

WIIM Phase 2 Moyola Magherafelt WP

# Appendix 3

## Newry, Mourn and Down District Council



### Percentage Compliance at Customer Tap (including Supply Points)

	Target	2017	2018	2018	2020	2021	2022
Northern Ireland Compliance	99.7%	99.8%	99.8%	99.8%	99.9%	99.9%	99.9%
Newry, Mourn & Down Compliance	99.7%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%

### 2022 water supply zones wholly or partially within the council area:

Zone Code	Zone Name	Zone Code	Zone Name
ZN1101	Clay Lake Keady	ZS0901	Castor Bay Newry West
ZS0501	Drumaroad Lisburn	ZS0902	Fofanny Dromore
ZS0601	Drumaroad Ballynahinch	ZS0904	Fofanny Mourn
ZS0602	Drumaroad Downpatrick	ZS1001	Carran Hill Crossmaglen
ZS0810	Castor Bay Tandragee	ZS1002	Carran Hill Camly

## 2022 water quality Capital Works Programmes affecting the council area:

2021 Drought Mitigation Project  
Abstraction Monitoring  
Backsiphonage at WTW  
Ballintemple Zone Watermain Improvements  
Banbridge South Armagh WIIM 2.1 Work Package  
Camlough/Bessbrook Sewerage Scheme - Phases 2&3  
Clean Water Network Modelling 2021 to 2024  
Facilities Management Review  
Feasibility Study for using Groundwater Abstraction  
Fofanny CWB  
High Demand - External Modelling  
High Trees Donaghadee  
Mill Road Kilcoo  
MIMP East (Major Incident Mitigation Project East Region) Freeze Thaw Improvements  
NIAMP5 Project Support  
Owner Controlled Insurance Programme (OCIP)  
PC15 Lead Communication Pipe Replacement Programme  
PC15 Year 1 Base Maintenance - Chlorine Dosing Sites  
PC27 Water Treatability optimisation pilot plant  
Preparation of Initial Work packages for PC21  
Professional Services - PC21 Watermain Rehabilitation, New and Replacement and First Time Services  
Professional Services Framework Watermain Network PC15  
SEMD Surveys PC10 Water  
Service Reservoir Security Phase 1  
Trunkmain Rehab PC21 Year 1  
Water Efficiency and Innovation Support Services  
Water Resource & Supply Resilience Plan  
Watermain Improvements, Newry, Phase 3  
Watermain New - Lead Pipe Replacement Programme  
Watermain Rehabilitation, New & Replacement Incorporating First Time Services - Professional Fees  
WIIM 2.2 Fofanny South Work Package

# Appendix 4

## Water Quality Events

### Serious Drinking Water Quality Events in 2022

Date of Serious Event	Area and Estimate of Population/ Properties Potentially Affected	Nature and Cause of Serious Event	Associated Council Area(s)
03/03/22 – 07/03/22	Kilrea / Garvagh area (6,731 population)	A short-lived period of high flow in the trunk main caused by an unknown third party. This caused a disturbance within the trunk main and led to a high number of consumer contacts regarding discoloration of their mains water supply. An affected Service Reservoir was temporarily by-passed and targeted flushing was carried out in the area.	Causeway Coast & Glens Borough
04/07/22 – 08/07/22	Sligo Road, Enniskillen (297 population)	Damage to a water main, and two sewers, caused by a third-party contractor. Due to the contamination risk, a precautionary 'Boil Water Notice' was issued to the affected properties. Subsequent isolation of the water main to facilitate repair and disinfection caused a loss of supply to consumers. Bottled water provisions were made available. Following repair work and satisfactory samples, "Safe to Drink" letters were issued.	Fermanagh & Omagh District
04/07/22 – 11/07/22	Forked Bridge WTW (91,365 population)	Elevated levels of turbidity occurred in the works final water following planned repair work on the Castor Bay to Forked Bridge pumping main. Subsequent aluminium and turbidity contraventions, both at the works and in the distribution system, were reported. Asset-to-asset tankering and re-zoning was used to maintain a supply of water while scouring and flushing was undertaken.	Armagh City, Banbridge and Craigavon Borough; Belfast City; Lisburn & Castlereagh City; Mid-Ulster District; and Newry, Mourne & Down District
16/12/22 – 23/12/22	Northern Ireland (1.9 million)	Interruption to water supply due to a prolonged period of freeze conditions followed by a rapid thaw. The resultant bursts throughout the system caused an increase in water demand. A NI Water Category 1 Incident was declared. While the repair of bursts was prioritised, output from the works were increased to meet the demand. Where required, re-zoning and asset-to-asset tankering was used to restore water levels.	All

# Appendix 4

## Significant Drinking Water Quality Events in 2022

Date of Significant Event	Area and Estimate of Population/ Properties Potentially Affected	Nature and Cause of Significant Event	Associated Council Area(s)
03/02/22 – 05/02/22	Baranailt Road, Claudy (10 properties)	Contamination of the mains water supply caused by ingress through an open hydrant during operational work to connect a new main, which took place during a period of heavy rain. Bottled water was provided to affected consumers and the main was chlorinated and flushed as a precaution.	Derry City & Strabane District
21/02/22 – Present	Ardownen, Craigavon (6 properties)	Samples taken in response to consumer complaints contravened the taste and odour parameters (above the Health Notification Values). The samples also contravened the standard for iron due to the condition of the iron mains. Extensive flushing resulted in satisfactory taste and odour samples. The investigation is ongoing in relation to the iron contraventions.	Armagh City, Banbridge and Craigavon Borough
31/03/22 – 01/04/22	Castor Bay WTW (367,219 population)	Contraventions of the turbidity and iron standards in the final water following an unplanned power outage, causing a plant shutdown. All samples collected within the distribution system were satisfactory.	Armagh City, Banbridge and Craigavon Borough; Belfast City; Lisburn & Castlereagh City; Mid-Ulster District; and Newry, Mourne & Down District
06/04/22 – 25/04/22	Belleek WTW (5,022 population)	<p>Contravention of the Individual pesticide standard for MCPA (2-methyl-4-chlorophenoxyacetic acid) in the final water from the works. Belleek WTW has pesticide removal treatment in place which is normally effective at reducing MCPA levels to below the regulatory limit. The pesticide removal treatment was not fully operational at the time of this event.</p> <p>The risk for MCPA exceedances is due to the use of MCPA within the catchment area.</p>	Fermanagh & Omagh District

## Appendix 4

Date of Significant Event	Area and Estimate of Population/ Properties Potentially Affected	Nature and Cause of Significant Event	Associated Council Area(s)
17/05/22 – 18/05/22	Drumaroad WTW (427,051 population)	A contravention of the Hydrogen ion (pH) parameter in the final water from the works. There were no treatment issues identified at this time. Following investigations NI Water was unable to identify the cause of the contravention. It was determined that it was unlikely to be representative of the pH of the water in supply.	Belfast City; Lisburn & Castlereagh City; Newry, Mourne & Down District; and North Down & Ards Borough
10/05/22 – 18/05/22	Derg WTW (41,681 population)	<p>Contraventions of the individual pesticide standard for MCPA occurred in the works final water due to insufficient treatment. A Regulation 31(4) Notice has been issued by DWI in respect of pesticide contraventions. NI Water have undertaken a major upgrade of this works for MCPA removal in response to this Notice.</p> <p>The risk for MCPA exceedances is due to the use of MCPA within the catchment area.</p>	Derry City & Strabane District and Fermanagh & Omagh District.
08/06/22 – 09/06/22	Fofanny WTW (156,923 population)	Food grade oil contamination of a filter used for pesticide reduction within the treatment works during planned refurbishment work on the filters. The filter was immediately taken out of service pending removal of the oil. The water quality at the water treatment works was unaffected.	Newry, Mourne & Down District
08/06/22 – 05/07/22	Killyhevlin WTW (79,584 population)	<p>A Cryptosporidium oocyst was detected in the works final water on two occasions. UV disinfection treatment is in place at Killyhevlin WTW for Cryptosporidium oocyst deactivation, therefore there was no risk to the treated drinking water quality as the detected oocyst was not viable.</p> <p>All subsequent samples were satisfactory.</p>	Fermanagh & Omagh District

## Appendix 4

Date of Significant Event	Area and Estimate of Population/ Properties Potentially Affected	Nature and Cause of Significant Event	Associated Council Area(s)
22/06/22 - 27/07/22	A College in Lisburn area (1,200 population)	Samples taken in response to a consumer complaint contravened the E. coli and coliform bacteria parameters. 'Do not use for drinking or cooking' advice was issued and bottled water provided. Further sampling and investigation identified that this was an internal issue in one building's storage tanks as the most probable cause. The quality of the drinking water supply to the premises was satisfactory. The storage tanks were by-passed, and satisfactory samples obtained.	Lisburn & Castlereagh City
03/07/22 - 05/07/22	Whiteabbey SR Pumping Main (14,259 population)	A burst occurred on the pumping main between Whiteabbey Lower and Whiteabbey Upper SRs. During operational work to facilitate re-zoning, a number of consumers experienced discoloured water. Tankering and further re-zoning was used to maintain supply to customers pending repair of the burst and the return to normal operation.	Antrim & Newtownabbey
05/07/22 - 06/07/22	Drumaroad WTW (446,519 population)	A contravention of the Hydrogen ion (pH) parameter in the final water from the works. There were no treatment issues identified at this time. Following an investigation, NI Water was unable to identify the cause of the contravention, but it was unlikely to be representative of the pH of the water in supply.	Belfast City; Lisburn & Castlereagh City; Newry, Mourne & Down District; and North Down & Ards Borough
27/06/22 - 05/07/22	Glenhordial WTW (12,030 population)	<p>A contravention of the individual pesticide standard for MCPA occurred in the works final water. Glenhordial WTW has pesticide removal treatment in place which is normally effective at reducing MCPA levels to below the regulatory limit. The pesticide removal treatment was not fully operational at the time of this event.</p> <p>The risk for MCPA exceedances is due to the use of MCPA within the catchment area.</p>	Fermanagh & Omagh District

# Appendix 4

Date of Significant Event	Area and Estimate of Population/ Properties Potentially Affected	Nature and Cause of Significant Event	Associated Council Area(s)
09/08/22 – 15/08/22	Forked Bridge WTW (91,365 population)	A contravention of the aluminium parameter occurred in the works final water following a communications failure, which led to unstable flows within the pumping main from Castor Bay WTW.	Armagh City, Banbridge and Craigavon Borough; Belfast City; Lisburn & Castlereagh City; Mid-Ulster District; and Newry, Mourne & Down District
16/08/22 – 10/11/22	Derg WTW (41,681 population)	A contravention of the Total Trihalomethanes (THMs) parameter occurred in the works supply area due to insufficient organics removal during treatment. NI Water have undertaken a major upgrade of this works.	Derry City & Strabane District and Fermanagh & Omagh District.
04/09/22 – 05/10/22	Ballinrees WTW (119,178 population)	Contraventions of the taste and odour parameters occurred in the works final water and related distribution due to insufficient treatment. Consumer complaints regarding Taste & Odour in the Ballinrees WTW supply area were received by NI Water. A Regulation 31(4) Notice has been issued by DWI in relation to taste and odour contraventions at Ballinrees WTW. NI Water have commenced an upgrade of this works in response to this Notice.	Causeway Coast & Glens Borough & Derry City & Strabane District
11/09/22 – 14/10/22	Moneymore WTW (4,634 population)	Loss of chlorination of the works final water due to a faulty pump, and failure of the works to automatically shut down due to inappropriate alarm settings. There was no impact on the microbiological water quality with all samples taken bacteriologically satisfactory.	Mid-Ulster District
07/10/22 – 08/10/22	Fofanny WTW (156,923 population)	A contravention of the aluminium parameter occurred in the works final water following an unplanned power outage which caused treatment difficulties. All samples taken were satisfactory.	Newry, Mourne & Down District
05/11/22 – 06/11/22	Ballinrees WTW (180,817 population)	Elevated levels of turbidity and aluminium occurred in the works final water following partial loss of effective treatment caused by a dosing pump failure. All samples taken were satisfactory.	Causeway Coast & Glens Borough & Derry City & Strabane District



## Appendix 4

Date of Significant Event	Area and Estimate of Population/ Properties Potentially Affected	Nature and Cause of Significant Event	Associated Council Area(s)
26/09/22 – 11/10/22	Dungonnell WTW (28,355 population)	Contraventions of the Total Trihalomethanes (THMs) parameter occurred in the works supply area due to insufficient organics removal during water treatment. Improvement work in relation to THMs at Dungonnell WTW is included in the PC21 work plan.	Mid & East Antrim Borough
08/11/22 – Present	Ardmore Road, Londonderry (80 properties)	Samples taken in response to consumer complaints contravened the iron and turbidity standards (including results above the Health Notification Values) due to the condition of the iron mains. Mains replacement is scheduled for 2023. NI Water put in place a mains flushing programme to reduce iron levels and reduce the risk for discoloured water as an interim measure until the mains replacement is completed.	Derry City & Strabane District
15/11/22 – 16/11/22	Killylane WTW (49,846 population)	Elevated levels of aluminium and turbidity occurred in the works final water due to treatment difficulties caused by a chemical dosing failure. All samples taken were satisfactory.	Mid & East Antrim Borough
21/11/22 – 25/11/22	Caugh Hill WTW (79,501 population)	A contravention of the hydrogen ion (pH) parameter occurred in the works final water. Following an investigation, NI Water was unable to identify the cause of the contravention.	Causeway Coast & Glens Borough & Derry City & Strabane District
18/11/22 – Present	Meadowbrook, Ballybogey (14 properties)	Samples taken in response to a consumer complaint contravened the aluminium, iron, manganese, and turbidity standards (including results above the Health Notification Values). This is most likely due to the condition of a short section of iron mains. Mains replacement is scheduled for 2023. NI Water has put in place a mains flushing programme to reduce the risk of elevated metal levels and discoloured water as an interim measure until the mains replacement is completed.	Causeway Coast & Glens Borough

# Appendix 4

Date of Significant Event	Area and Estimate of Population/ Properties Potentially Affected	Nature and Cause of Significant Event	Associated Council Area(s)
15/12/22 – 17/12/22	Dungonnell WTW (28,355 population)	Contraventions of the aluminium, hydrogen ion (pH) and turbidity parameters occurred in the water supplied from the works. This was due to treatment issues caused by cold weather conditions.	Mid & East Antrim Borough

After investigations during the reporting period, there were also six events categorised by DWI as “Minor”, and fourteen events categorised as “Not Significant”.

# Appendix 5

## The Water Supply (Water Fittings) Regulations (NI) 2009 Compliance Policy

NI Water employs a Field Manager, supported by a team of seven customer facing water regulation inspectors located across Northern Ireland, along with an administrative support officer, all under the direction of a senior manager and Head of Department.

### Number of staff involved in compliance & enforcement of Water Regulations

Description	Number
Spending more than 75% of time	9
Spending between 25% and 50% of time	1
Spending between 0% and 5% of time	1

Water Fittings Regulation Inspection staff are required to have passed the City and Guilds (C&G) qualification in Water Fittings Regulations for Compliance staff with any new inductees not already qualified obliged to undertake and pass same.

Additional specialist training to meet NI Water operational requirements may also be provided. This may comprise:

- Reduced Pressure Zone devices (RPZ) - essential to maintain valid oversight of the RPZ approval process and permit sufficient coverage by NI Water in face of increased installation rates.
- Criminal investigation procedures course - essential to ensure safeguard enforcement in cases of non-compliance.

NI Water allocates every premises with a fluid category rating derived from SIC codes. A proactive inspection programme is carried out each year with inspection intervals based on national best practice as agreed between the UK water suppliers and the industries' representative organisation.

The Water Regulation team has systems and processes in place to schedule and report on inspections, follow up inspections, findings, contraventions and improvement notices. The Regulation team regularly liaises with external customers, in addition to internal scientific services and water distribution colleagues regarding regulatory compliance/non-compliance. The team also liaises with other GB water company regulation teams and water industry expert groups to ensure consistent application of the 2009 Regulations.

Notwithstanding physical inspection practices, outbound correspondence, literature and digital resources provide customers with a valuable insight to what the Regulations mean in terms of protecting drinking water supplies. Moreover, these explain customers obligations under the legislation and the potential consequences of non-compliance.

**“The Water Supply (Water Fittings) Regulations”** pamphlet details the reason for the 2009 Regulations and highlights the customer’s obligations. An additional pamphlet entitled **“Planning some plumbing work - Know the Law”** which details notifiable items and promotes the use of approved plumbers through WaterSafe – (WaterSafe.org.uk). Online resources have been published on the NI Water website [www.niwater.com](http://www.niwater.com) where customers can download the Regulations, guidance notes, information leaflets and notification forms. These guidance notes have been revised in such a way as to enable universal coverage of available water industry test houses and ensure neutrality.

NI Water strongly promotes and advocates the benefits of customers using Approved Plumbers (APs) who are members of WaterSafe and the Plumbing Industry Licensing Scheme (PILS). The PILS scheme is administered by the trade association known as the Scottish and Northern Ireland Plumbing Employers Federations (SNIPEF).

Where NI Water considers that any requirement of the regulations is inappropriate, we may apply to the Regulator for a relaxation. This, however, would only be in the event of exceptional circumstances and not because of failure or lack of due diligence by customers to comply with legislation.

# Appendix 5

## NI Water Customer Base

Base Data, using NIAUR 2021 Annual Information Return (AIR) figures:

Description	Number
Total number of connected premises*	908,464
Total number of new connections from 01/01/21 - 31/12/21**	6,235

Data source - The Utility Regulator (NI) Annual Information Return(AIR) figures

\* figures as at 31/12/22

\*\* figures by financial year 2022/23

### Promotion of the Regulations

As a fully subscribing member of WaterRegsUK, NI Water has representation on the WaterRegsUK Board as well as the Policy Committee, Technical Committee and Practitioners' Group forums. Meeting routinely throughout the year these valuable forums allow NI Water and industry colleagues to field difficult and complex questions and receive comprehensive and timely feedback on issues affecting the industry. Interpretation of the Regulations may also be sought, openly discussed and solutions initiated where unusual installations are discovered, or a dispute arises with an installer / manufacturer. Participation on this national stage ensures NI Water, like other water suppliers, apply the Regulations consistently across its customer base.

A Water Regulation page is available on the company web site ([www.niwater.com/water-fittings-regulations/](http://www.niwater.com/water-fittings-regulations/)) for domestic and non-domestic customers to refer to. The site contains regulation specific background information, leaflets in PDF format and customer notification forms and is provided in all forms of communication during the Regulations process. An official water regulation e-mail address is also provided to facilitate the referral of all water regulation related work & enquiries - [waterregulations@niwater.com](mailto:waterregulations@niwater.com)

### Notifications

In most cases, customers must notify NI Water in advance of installing or making changes to the water plumbing systems within their premises. Owners, occupiers, and plumbing installers must obtain approval from NI Water by giving advance notice in writing of their intentions. Advance notification forms for this purpose can be obtained from the NI Water website along with the list of work that should not commence without advance notification. Where notification is received, NI Water will not unreasonably withhold consent for any proposed work. Consent is also automatically conferred where the applicant does not hear from NI Water within 10 working days of receipt.

A total of 53 notifications relating to aspects of water fittings were received during the 2022 calendar year, all of which were approved.

## Approved Contractors Scheme

Owners and occupiers of premises and anyone who installs plumbing systems have a legal duty to ensure their systems satisfy the requirements of the 2009 Regulations. NI Water strongly recommends customers use approved plumbing contractors who are members of an approved contractors' scheme when installing, altering or repairing plumbing systems, water fittings and water-using appliances. These include firms and individuals who are members of the WaterSafe scheme funded by the water industry including NI Water. An approved plumbing contractor will certify that his or her work meets the requirements of the Regulations and any subsequent breaches associated with their work is the legal responsibility of the plumber and not the individual owner or occupier.

WaterSafe is a dedicated facility bringing together thousands of qualified contractors employed by plumbing businesses from the existing Approved Contractors scheme across the UK and can be contacted via telephone 03332 079030. The Scottish and Northern Ireland Plumbing Employers Federation (SNIPEF) Plumbing Industry Licensing Scheme is also a long-standing approved contractor scheme recommended by NI Water and can also be contacted at 0131 556 0600. Websites operated by both of these organisations offer valuable assistance as well as an online search facility to locate approved plumbing contractors in your area by simple post-code search. These are [www.snipef.org](http://www.snipef.org) and [www.WaterSafe.org.uk](http://www.WaterSafe.org.uk)

Description (N. Ireland data from SNIPEF records)	Number (by calendar year)					
	2017	2018	2019	2020	2021	2022
Approved plumbers	55	52	69	61	56	54
Plumbers who are members of WaterSafe & PILS*	39	41	40	38	34	33
Approved plumbers not registered with WaterSafe	10	11	12	13	12	12
SNIPEF member not registered with WaterSafe or PILS*	N/A	N/A	7	10	10	9

\* Plumbing Industry Licensing Scheme

## Inspections (Other than those arising from Notification)

Description	Number (by calendar year)			
	2019	2020	2021	2022
Total number of Domestic and Non-Domestic Inspections	1,279	709	569	410
Total number of active Contraventions recorded in year	1,144	510	446	948
Total number of closed Contraventions in year	896	381	286	1,102
Total Number of outstanding contraventions in year	248	129	160	469

# Appendix 5

Contraventions found on all property types can vary greatly. Typical examples are listed below:

- Failure to comply with Regulation 5 – Notifications.
- Water fittings non-compliant with Regulation 4.
- Cross connections between public and private water supplies, (Bore Wells linked to NI Water supplies within private premises).
- RPZ installations.
- Hose Union taps, Agricultural troughs. Back Siphonage/Cross connection protection.
- Alternative/Rainwater Harvesting systems not being installed in compliance with British Standards and the Regulations.
- Storage cisterns having the wrong type of Air Gap fitted.
- Inadequate insulation against cold and heat, i.e., frost protection or heat transfer. Most commonly inadequate or no insulation or insufficient spacing between pipework.
- Overflows running to waste in non-visual areas.
- Dead legs on pipework i.e., redundant dead-end pipes.
- The requirement to install servicing valves.
- Lack of labelling of pipework
- Shallow service pipes providing insufficient protection from frost protection.
- Poor workmanship – pipework installed in unworkmanlike fashion.

## Disputes

No formal disputes were referred to arbitration in the reporting year.

## Relaxations

No relaxations were applied for in the reporting year.

## Compliance Actions

NI Water, through its compliance activities, has a graduated process of engaging customers. An inspection is initially arranged via telephone with the owner/occupier of a premises where details are confirmed, and appointment duly confirmed via letter. On completion of the inspection a detailed report confirming pass/fail status is issued, detailing discovered contraventions, and recommended remedial actions. Where contraventions have been cited, customers are given an adequate period to complete remedial works and followed up with a reminder letter and phone calls to encourage compliance. Where any difficulty or confusion is encountered by customers NI Water actively encourage contact with the designated Inspector where further advice or assistance may be offered. However, in situations where compliance is not forthcoming the matter is referred to the NI Water legal team for appropriate action.

# Appendix 5

## Attributed to water quality incidents and NIW observations (15)

In addition to proactive inspections, NI Water's Water Fittings Regulation team also undertook reactive inspections because of water quality concerns following sample failures requests for assistance from NI Water staff and customers.

Date	Address
Jan-22	Ballynamagna Road, Rathfriland
Jan-22	Mullantine Road, Craigavon
Mar-22	Ardboe Drive, Lurgan
Mar-22	Cairnshill Road, Belfast
Mar-22	Craft Village, Londonderry
Jun-22	Ballygowan Road, Castlereagh
Jun-22	Donard Drive, Lisburn
Sep-22	Drumena Road, Rathfriland
Oct-22	Drumalief Road, Limavady
Nov-22	Mowhan Road, Armagh
Nov-22	Drumcrow Road, Armagh
Nov-22	Barnish Road, Randalstown
Dec-22	Meadowbrook, Ballybogy
Dec-22	Granville Road, Dungannon
Dec-22	The Close, Dundonald

Resultant action taken by NI Water comprises reports are submitted to NI Water scientific and operational teams with copies also made available to the Regulator. Customers are required to take remedial action to in line with the compliance process.

### Data reporting

Following a lengthy procurement process new regulatory data recording & reporting systems (Connect 2 and APEX) went live on October 2022. Replacing an interim manual solution these systems are designed to support a proactive risk-based inspection programme and enable the centralised recording and monitoring of all Inspection related activities. This also facilitates the compilation of reports at prescribed intervals to monitor and maintain workflow and fulfil regulatory requirements.

The newly upgraded Connect 2 customer derives data derives through an integrated link to the NI Water customer database (RAPID), unavailable under the prior operating system. The expansion of customer records in the intervening years, now migrated to the new Connect 2 system, resulted in the addition of approximately 10,000 high risk premises (Fluid Category 4-5) to inspection records. This is illustrated by an increase in numbers of such premises compared to the 2021 reporting year, now standing at circa 59,000 premises.

# Appendix 5

## Reporting Year Recap

NI Water's Water Fittings Regulations team has in the last reporting year:

- continued to promote the benefits of Water Regulations, and safeguards provided by the 2009 regulations across NI.
- updated all outbound correspondence & guidance necessary for completion of the compliance process.
- revised and enhanced administration practices to increase inspection levels.
- participated in water industry national working groups to further explore opportunities to promote regulatory consistency, customer notifications and performance standards reporting across the industry:
  - General publications
  - Farms/Caravanning/Alternative Water etc
  - Ports and Harbours working group
  - Operations working group
  - Technical Groups
  - Practitioners Groups
  - Approved Contractors Forums
  - Conference committees
  - RPZ Measures working group
- reported to DfI (Regulator), along with other "stakeholders", on a quarterly/yearly basis.

## Looking Forward

NI Water will continue to:

- participate with other GB water suppliers facilitated by WaterRegsUK in further refining and implementing the National Compliance Policy (Keeping Water Safe in Premises).
- promote the general awareness of the 2009 Regulations to customers at every appropriate opportunity.
- participate in and benefit from the attendance at WaterRegsUK forums.
- assist SNIPEF in the governance of the approved plumbing contractors' scheme and promotional opportunities to raise plumbing standards in Northern Ireland.
- improve internal reporting systems to ensure the standard of the annual Water Regulation return and interim regulatory reports.
- complete internal organisation changes to ensure robust and accountable application of regulatory requirements in the customer base.



# Appendix 6

## Glossary of Technical Terms

<b>Aesthetic</b>	Associated with the senses of taste, smell, and sight
<b>Authorised Supply Point</b>	A sampling point within the distribution system authorised by the DWI for certain parameters, because the results of the analysis of such samples are unlikely to differ in any material respect from the results of the analysis of samples taken from customer taps
<b>Catchment</b>	The area of land that drains into a watercourse
<b>Coagulation</b>	The process of aggregating colloidal and fine particulate matter into a settleable material
<b>Coliform bacteria</b>	A group of bacteria that may be faecal or environmental in origin
<b>Compliance assessment</b>	A comparison made by the DWI of data (gathered by NI Water) against standards and other regulatory requirements
<b>Contravention</b>	A breach of the regulatory requirement
<b>CPEO</b>	'Consideration of Provisional Enforcement Order' - first stage in DWI enforcement process
<b>Cryptosporidiosis</b>	The illness produced by infection with <i>Cryptosporidium</i>
<b>Cryptosporidium</b>	A protozoan parasite
<b>Determination</b>	A single analytical result for a specific parameter
<b>Distribution systems</b>	NI Water's network of mains, pipes, pumping stations and service reservoirs through which treated water is conveyed to customers
<b>Drinking Water Directive</b>	European Council Directive (98/83/EC) relating to the quality of water intended for human consumption
<b>DWI</b>	Northern Ireland Drinking Water Inspectorate - has an independent responsibility to audit drinking water quality compliance against the standards set in the Regulations
<b>DWSP</b>	'Drinking Water Safety Plan' Based on a comprehensive risk assessment and risk management approach to all the steps in a water supply chain
<b>EO</b>	'Enforcement Order' - third stage in DWI enforcement process
<b>Event</b>	A situation affecting or threatening to affect drinking water quality
<b>Exceedance</b>	Synonym for contravention (see above)
<b>Faecal coliforms</b>	A sub-group of coliforms, almost exclusively faecal in origin
<b>Filtration</b>	The separation of suspended particulate matter from a fluid
<b>GPS</b>	Global Positioning System - a satellite-based location system that gives an accurate record of position
<b>Groundwater</b>	Water from aquifers or other underground sources
<b>Hydrogen ion</b>	A measure of the acidity or basicity related to the concentration of the hydrogen ion (also referred to as pH)
<b>Incident</b>	An event where there has been a demonstrable deterioration in the quality of drinking water
<b>Investment programme</b>	Investment in improvement works to water treatment works and distribution systems
<b>LIMS</b>	Laboratory Information Management System - the computer system used by NI Water to record and audit the results of the hundreds of thousands of parameters analysed each year
<b>Mains rehabilitation</b>	Restoration or replacement of water mains pipework to a proper condition

# Appendix 6

<b>MCPA</b>	MCPA is a selective hormone-type herbicide, which is absorbed by the leaves and to some degree the roots
<b>Mean Zonal Compliance</b>	The former assessment of water quality at a parameter level based on water supply zones
<b>Microbiological</b>	Associated with the study of microbes
<b>m<sup>3</sup>/d</b>	Cubic metres per day
<b>mg/l</b>	Milligrams per litre
<b>µg/l</b>	Micrograms per litre
<b>ml</b>	Millilitre
<b>MI/d</b>	Megalitres per day (one MI/d is equivalent to 1,000 m <sup>3</sup> /d or 220,000 gallon/d)
<b>Oocyst</b>	The resistant form in which <i>Cryptosporidium</i> occurs in the environment, and which is capable of causing infection
<b>Orthophosphoric acid</b>	A chemical dosed in low concentrations at water treatment works to minimise the uptake of lead from old pipework into customer water
<b>PAHs</b>	A group of organic compounds known as polycyclic aromatic hydrocarbons, comprising, for the purposes of the Regulations, four substances: benzo(b)fluoranthene, benzo(k)fluoranthene benzo(ghi)perylene, and indeno (1,2,3-cd) pyrene
<b>Parameter</b>	A parameter is any substance, organism, or property listed in the regulations
<b>Pathogen</b>	An organism that causes disease
<b>PCV</b>	See 'Prescribed concentration or value'
<b>PEO</b>	'Provisional Enforcement Order' – second stage in DWI enforcement process
<b>Pesticides</b>	Any fungicide, herbicide or insecticide or related product (excluding medicines) used for the control of pests or diseases
<b>PHA</b>	The Public Health Agency works to initiate, stimulate, develop, and support health promotion
<b>Plumbosolvency</b>	The tendency for lead to dissolve in water
<b>Prescribed Concentration or Value</b>	The numerical value assigned to water quality standards (PCV), defining the maximum or minimum legal concentration or value of a parameter
<b>Protozoan parasites</b>	A single celled organism that can only survive by infecting a host
<b>Public register</b>	The information made available by NI Water to the public as required by regulation 38 in the Regulations
<b>Regulations</b>	The Water Supply (Water Quality) Regulations (Northern Ireland) 2017
<b>Remedial action</b>	Action taken to improve a situation
<b>RPZs</b>	Reduced Pressurised Zone Valve – a type of backflow prevention device
<b>SCaMP NI</b>	Sustainable Catchment Management Planning Northern Ireland
<b>Service reservoir (SR)</b>	A water tower, tank, or other reservoir used for the storage of treated water within the distribution system
<b>SIC Code</b>	Standard Industrial Classification Code – used for Water Fittings Regulations
<b>Springs</b>	Groundwater appearing at the surface at the outcrop of the junction of an impermeable stratum
<b>Surface water</b>	Water from rivers, impounding reservoirs, or other surface water sources

# Appendix 6

<b>Technical audit</b>	The means of checking by the DWI that NI Water is complying with its statutory obligations
<b>Toxicology</b>	The study of the health effects of substances
<b>Treated water</b>	Water treated for use for domestic purposes as defined in the Regulations
<b>Trihalomethanes (THMs)</b>	A group of organic substances comprising, for the purposes of the Regulations, four substances: trichloromethane (also known as chloroform), dichlorobromomethane, dibromochloromethane, and tribromomethane
<b>UKAS</b>	The sole national accreditation body recognized by the UK government to assess, against internationally agreed standards, organisations that provide certification, testing, inspection, and calibration services
<b>Utility Regulator</b>	The Northern Ireland Authority for Utility Regulation (NIAUR)
<b>WDPD</b>	DfI Water and Drainage Policy Division. Deemed to be the Regulator for all activities associated with the Water Supply (Water Fittings) Regulations (NI) 2009
<b>WRAS</b>	The Water Regulation Advisory Scheme. A list of Standard Industrial Classification codes with related fluid categories used to define categories of non-domestic properties
<b>Water Regulations</b>	The Water Supply (Water Fittings) Regulations (NI) 2009
<b>Water Safety Plan</b>	A means of ensuring that a water supply is safe for human consumption based on a comprehensive risk assessment and risk management approach to all the steps in a water supply chain from catchment to tap
<b>Water supply zone (Zone)</b>	The basic unit of supply for establishing sampling frequencies, compliance with standards and information to be made publicly available
<b>Website</b>	Location of information on the Internet. NI Water's website is: <a href="http://www.niwater.com">www.niwater.com</a>
<b>Weed-wiping</b>	Weed treatment method wiping the top of weeds using a roller or wicks infused with pesticide
<b>Wholesomeness</b>	A concept of water quality that is defined by reference to standards and other requirements set out in the Regulations

