



Drinking Water Quality  
**Annual Report 2015**





## Introduction and Foreword

I am pleased to present Northern Ireland Water's (NI Water) Annual Drinking Water Quality report covering the calendar year 2015. This is the twelfth annual review on the quality of drinking water in Northern Ireland since new regulations came into effect in 2004, and I am delighted to report that we continue to deliver a very high drinking water quality to our customers.

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.

Drinking water is carefully monitored and tested for quality. This report summarises NI Water's results from 1 January 2015 to 31 December 2015 to meet the requirements of the Regulations under which we operate. During this reporting period, 99.83% of all tests carried out on samples taken from water treatment works, service reservoirs and customer taps complied with the regulatory standards assessed using Overall Percentage Compliance. This measure has been adopted as the standard, high level, indicator for water quality throughout the treatment and distribution processes across the UK.

At the same time as maintaining a very high quality of drinking water for our customers, NI Water again also returned the highest ever quality of treated wastewater safely back to the environment.

NI Water has continued to have issues with elevated levels of pesticides in our catchments. This is caused largely by wash-off from farm land during the very wet weather events we have experienced in recent years. We continue to liaise closely with the farming community and other stakeholders through the Water Catchment Partnership and the SCaMP NI (Sustainable Catchment Management Planning) programme to try and minimise the chances of reoccurrence in the future – updated details of this are contained in this report.

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. Although our funding programme for our PC15 price control period (2015-21) continues to be uncertain, we are committed to overcome the challenges presented to us and will continue to work closely with our economic and environmental regulators, the Consumer Council and other stakeholders to maintain and improve our services to our customers. Our capital investment programme to maintain and safeguard water quality for the reporting period is set out using the Northern Ireland super council areas in Appendix 4.

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

We are now seeing the benefit of the investment in our overall infrastructure and systems over the past number of years, and as we move forward our investments will be more directly customer focused to improve water quality at a local level, despite ever present financial pressures. 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.

Please note, in May 2016 Northern Ireland's government departments were restructured from 12 down to 9 departments with NI Water now reporting to the Department for Infrastructure (DfI). For the most part within this report we still refer to the previous departments as they were the governing bodies for the reporting period – this will change going forward. A summary of the departmental changes can be found at Appendix 3.



**Sara Venning**  
Chief Executive Officer

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# Drinking Water Quality

## Water Quality Standards

During 2015 Drinking Water Quality in Northern Ireland was assessed against standards set in the Water Supply (Water Quality) Regulations (Northern Ireland) 2007 as amended. 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 standards for water quality 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 which 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, 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 7).

## 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 which do not change in the supply watermain 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 which 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 50 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 at all times liaise 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) 2007”

Reporting Year	2012	2013	2014	2015
<b>% Overall compliance with drinking water regulations</b>	99.77%	99.81%	99.86%	99.83%
<b>% Compliance at consumers tap (including supply points)</b>	99.63%	99.74%	99.78%	99.74%
<b>% Iron compliance at consumers tap</b>	97.25%	98.08%	98.95%	98.40%
<b>% Service Reservoirs with coliforms in &gt;5% samples</b>	0.30%	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 which 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, Social Services and Public Safety, the Public Health Agency, the Drinking Water Inspectorate, the Northern Ireland Public Health Laboratory, the Chief Environmental Health Officers' Group 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 will be regularly reviewed and updated.

The guidance document can be found at:-

<https://www.niwater.com/drinking-water-guidance/>

## Lead Monitoring for Vulnerable Customers

The regulatory limit for lead in drinking water was reduced at the end of 2013 from 25µg/l to 10µg/l. In advance of this reduction, from 2011 NI Water (in liaison with the Northern Ireland Education Authorities) put in place a monitoring programme to identify potential high lead levels for schools.

Primary Schools in Northern Ireland have been prioritised based on the age of the school and dates of any building modification and sampled as part of this programme. From this, a monitoring programme was initiated in 2011 that began with the top priority schools and continues as an ongoing programme.

Any school where lead levels were found to be above the 10µg/l standard was investigated and the lead pipework replaced by NI Water and the Education Authorities, as appropriate. During 2014, 1 primary school had this plumbing replaced.

This monitoring programme was further expanded to children's hospitals and children's homes during 2013. Other non-domestic locations where children spend a significant amount of their time will be considered as they are identified and opportunistically replaced.

## Lead Pipework Replacement Programme

The NI Water Asset Strategy for Management of Lead 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 three strands, as summarised below:-

- Removal of NI Water owned lead assets from the water distribution system
- Minimise the adsorption of lead into drinking water
- Encourage the removal of customer owned lead assets

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

- Actively replacing lead pipes during mains replacement and when water quality testing indicates lead pipe is present
- Actively replacing lead pipes when a customer requests NI Water to replace lead pipework to their property when they have replaced lead pipe internally in their property

During PC15 NI Water will be replacing over 1800 lead pipes per year within its distribution network. This programme of replacement has 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 consumer.

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 Planning Northern Ireland (SCaMP NI)

The aim of NI Water's award winning SCaMP NI project is to sustainably protect and enhance the water environment through managing the surrounding land. NI Water has a history of doing just that on the land we own around our reservoirs and catchment areas – many of which the public can visit and enjoy.

NI Water needs to effectively manage the water resources in our rivers, lakes and reservoirs from which we abstract, to provide potable water use for drinking, household use, farming and manufacturing. This natural resource is precious and we often take it for granted and are often oblivious to both the cost of water and the impact its misuse can have both on our environment and our raw water supplies.

NI Water owns approximately 9400 Hectares of land in Northern Ireland and has an active interest in many times this area of land within drinking water catchments that are owned by others. These catchment areas provide raw water for treatment at the 25 Water Treatment Works currently providing drinking water for our customers in Northern Ireland. Some of these drinking water catchment areas are wholly owned by NI Water, some are partly owned and in many cases NI Water owns no catchment land at all apart from the site of the WTWs.

### Objectives

The SCaMP NI project is an approach to sustainable land management within drinking water catchments, NI Water land and that of others, to increase the benefits gained and minimise risks from the environment. Water catchments are designed to be the first stage of a multiple barrier approach to water treatment.

The objective is to improve the quality and reliability of the raw water received at NI Water's raw water abstraction points through sustainable catchment based solutions that focus on protecting the natural environment through achieving favourable condition and habitat improvement. The SCaMP NI Policy formalises NI Water's approach to meeting a number of legislative drivers as well as internal and external objectives.

### Working with Stakeholders

The project has been successful at demonstrating how by working together we can manage catchments for water quality and other benefits such as an improved natural environment.

A SCaMP NI Steering Group has been set up with representation from a wide range of environmental stakeholders. The aim of the group is to ensure that actions are aligned with best practice and the aims and objectives of all stakeholders, therefore contributing holistically to sustainable catchment management.

NI Water will seek to develop:-

- Solutions that focus on addressing the source of the problem, rather than dealing with the consequences;
- Win-win solutions, that offer benefits under as many of the primary and secondary drivers as possible;
- Opportunities to work with other government departments, non-government organisations, environmental stakeholders and cross-border partners to attain solutions that provide shared goals and benefits and allow increased leverage of investments made through positive gearing.



**Windfarm construction adjacent to Lough Lee, in the catchment of Lough Bradan WTW**

## Working on Cross-Border Catchments

The Derg, Lough Erne and Lough Ross catchments straddle the border and are predominantly rural. Peatlands and forestry predominate in the upper catchments, with grassland based agriculture and pasture in lower areas. Diffuse or point source pollution on either side of the border can affect raw water quality for treatment by NI Water or Irish Water, so there is mutual benefit in co-operation to deal with the issues through joint SCaMP initiatives.

During 2015 there has been considerable cross-border co-operation with Irish Water and other stakeholders in the Republic of Ireland. Work is currently underway to attract EU funding to deal with SCaMP issues on cross border catchments where co-operation is essential for success.



There are also a number of other EU funding sources being actively sought in partnership with a variety of stakeholders to progress SCaMP initiatives. This will help to secure safe drinking water sources and it will contribute to improvements in cross border raw water quality.

## Managing Public Recreation and Access on NI Water Land

NI Water welcomes members of the public, organisations and groups, giving access to its land and bodies of water and will endeavour to facilitate recreational activities, where safe to do so and where financial resources permit. There is a need to provide public access where possible, whilst ensuring that there are no safety issues, damage caused to the environment and always safeguarding the quality of drinking water supplied to its customers.

A Recreation and Access Policy has been developed to provide a framework defining what access is permitted to NI Water owned lands and waters, and how access arrangements will be communicated, controlled and governed.

## Managing Invasive Species

Many non-native (exotic/alien) species have been intentionally or unintentionally introduced into Northern Ireland from around the world. Tackling invasive alien species is complex due to the range of environmental, social, economic, political and technological factors involved and the interactions between them. There have been invasive species found on some areas of NI Water owned land which have had to be dealt with. The main challenges for NI Water include:-

- Halting impacts on biodiversity and the economy from invasive alien species;
- Preventing new introductions;
- Early detection of new species;
- Controlling and containing existing species;
- Mitigating impacts for the environment and water quality.

## Solution Types

NI Water has a number of objectives associated with its land holdings that it is working to meet. These add value to the lands primary function as drinking water catchments, and offers benefits and opportunities to the wider community of Northern Ireland.

Water quality risks arise because raw water abstracted from watercourses often contains contaminants such as pesticides, organic colour and sediments which run off the land and must be removed in Water Treatment Works to produce drinking water to acceptable water quality standards. It is more cost effective to reduce contaminants in run-off from the land at the source resulting in reduced capital investment requirements, reduced carbon outputs and reduced operational costs required to remove pollutants at WTW. There is the added benefit of improving water quality which provides improved wildlife habitats.

The solutions can be based on capital interventions (which result in the maintenance or creation of assets) or operational solutions (which provide a service such as the provision of guidance on land use). These solutions can either be on NI Water land or private land so long as it can be shown that NI Water receives benefits against a primary driver over a period of time. It is therefore necessary to be able to assess the benefits.

### Catchment Management Studies

So far Catchment Management Studies have been carried out at Dorisland, Clay Lake, Killylane, Derg, Lough Bradan, Caugh Hill, Carmoney, Seagahan, Altnahinch, Drumaroad (Silent Valley) and Fofanny catchments. It is our target to carry out a further seven studies in the 2016/17 financial year and complete studies in every drinking water catchment in N Ireland during the PC15 period, working on a prioritised basis.

The Catchment Management Studies aim to undertake a scoping and planning study of the drinking water catchments. This uses the approach advocated in the UK Water Industry Research (UKWIR) framework for quantifying the benefits of catchment management, to establish the basis for a programme of management that provides business benefits to NI Water. Diffuse water pollution and insensitive land management may pollute surface and ground water supplies with substances such as nutrients, pesticides and microbial pathogens. It may also increase colour, turbidity and suspended solids in abstracted water. These unwelcome substances increase the capital and operating costs of water treatment, increase the quantity of effluent and waste produced, and increase the carbon footprint of the industry.

Where such risks are identified in drinking water catchments, NI Water aims to implement catchment management schemes that improve raw water quality, enhance water resources, and reduce

future catchment-based risks to raw water quality and quantity. We also want to meet NI Water's obligations as a responsible landowner whilst adopting an approach which gives a sustainable reduced cost for treating water to a high quality. The Catchment Management Studies will inform where future SCaMP NI projects are possible to sustainably improve raw water quality and the environment.

### Riparian Planting

A riparian zone is a vegetated area (a "buffer strip") near a stream, usually planted with trees, which helps shade and partially protect a stream from the impact of adjacent land uses. It plays a key role in increasing water quality in associated streams, rivers, and lakes, thus providing environmental benefits.

The key water quality benefits are:-

- Intercepting sediments/nutrients, thus improving water quality for abstraction;
- Intercepting pesticides - Riparian buffers keep chemicals that can be harmful to aquatic life out of the water;
- Bank stabilization - This is important because erosion can be a major problem in agricultural regions when livestock encroachment and eroded banks can detrimentally affect water quality, particularly during times of high flows.



**NI Water, The Woodland Trust and The Loughs Agency collaborated on a SCAMP project to stabilize the banks of Glenedra River by undertaking the planting of 5,742 native broadleaf trees in a riparian zone along the river.**

## Dealing with Pesticides

Pesticides include herbicides, weedkillers, fungicides and insecticides. In recent years there have been rising levels of the grassland herbicide MCPA found in watercourses across Northern Ireland. This is difficult and expensive to remove in the water treatment process. In order to deal with the issue at source The Water Catchment Partnership has been formed. This is a working partnership established from representatives from:-

- N I Water;
- Ulster Farmers' Union;
- Northern Ireland Environment Agency;
- College of Agriculture, Food and Rural Enterprise;
- DARDNI;
- The Voluntary Initiative.

The aim of this partnership is to deliver one message incorporating the ethos from all organisations to effectively tackle the problem of pesticides in the water environment, particularly in Drinking Water areas. The partnership proactively works together to promote and raise awareness of best practice when using pesticides in the garden or on the farm, through a voluntary approach to improve water quality. One of the key messages is to take extreme care and adopt best practice when using and disposing of chemicals and pesticides and use of DARDNI's Code of Practice for Plant Protection Products.

The Water Catchment Partnership was active in 2015 as follows:-

- Rush control events held in conjunction with CAFRE at seven venues across N Ireland, attended by almost 350 farmers;
- 1,180 farms visited in Derg Catchment by the Farm Liaison Officer to raise awareness and provide best practice guidance on grassland pesticide use in the farming community;
- WCP Pesticide Best Practice leaflet posted to all households in Derg Catchment in advance of the Farm liaison visits;
- Farm Liaison Officer visited 80 livestock marks, pesticide suppliers and garden centres across NI to distribute pesticide information posters and best practice leaflets;
- Gave out best practice advice at 4 agricultural shows;
- Advice given to 28,000 farmers through DARDNI publications on best practice when using pesticides.



**Partners from the Water Catchment Partnership distributing pesticide best practice advice at Balmoral Agricultural Show on May 2015**

### Wildfire Control

The Silent valley Catchment and surrounding area of the Mourne are subject to wildfires. In 2004 a wildfire incident damaged an area of 0.8km<sup>2</sup> and again in April / May 2011 another wildfire in the area damaged between 8-10km<sup>2</sup> of upland heath. Wildfires can have devastating effects on habitats, flora and fauna, pose a risk to human life and stretch the resources of agencies.

The 2004 fire incident alone is estimated to have cost NI Water circa £230,000 as a result of deterioration in raw water quality leading to increased treatment costs!

NI Water, in conjunction with Mourne Heritage Trust (MHT), NI Environment Agency (NIEA) and NI Fire & Rescue Service (NIFRS), developed a coordinated approach to wildfire prevention and response and a project was established. Wildfire Advisory Services were appointed and a report was completed to recommend practical wildfire management measures to deliver protection of the Eastern Mourne drinking water catchment and the wider Eastern Mourne ASSI/SAC. It also considered appropriate emergency response to wildfires. The report made a number of recommendations that are being undertaken in order to reduce the risk and

impact of fires and establish a long term sustainable fuel management plan.

This project is widely regarded across the UK as innovative and an example to follow. The implementation of all of the recommendations in the report will be challenging given that the project involves a wide and varied range of stakeholders, set against a backdrop of funding cuts for many of the agencies involved. However in the long term the project aims to protect the drinking water supply, protect human life, protect the heathland and preserve a beautiful Mourne landscape for generations to come.



**Controlled burn in the Mourne in March 2015 to control vegetation and reduce the risk of wildfires spreading in future**

## Peatland Restoration

Over the years many peat bogs have been overgrazed by livestock or damaged during the 1960s and 1970s when drainage ditches were dug to increase production. Both of these activities give rise to exposed peat that is susceptible to erosion. This frequently results in the reduced quality of raw water which is expensive to treat as well as damaged habitats and natural hydrology of the bog.

An excellent example of this was at Garron Plateau on the Antrim Hills, which is in the catchment of Dungonnell WTW. This is the largest expanse of intact blanket bog in Northern Ireland and it is home to protected birds of prey and rare plants such as marsh saxifrage and bog orchid. NI Water has been working with the assistance of the RSPB and NIEA to protect and restore 2,000 hectares of peatland on the plateau.

In order to reverse the damage, a landscape scale approach was taken, ensuring that the whole catchment is managed sustainably.

NI Water worked with tenant farmers to reduce the grazing pressure, thus allowing the natural bog vegetation to recover. Also work was done to restore the natural hydrological conditions by blocking drains using peat, stone and sheet dams to raise the water table. This resulted in raising the water table and the “re-wetting” of the bog, promoting colonisation by Sphagnum moss, an essential component of a functioning bog. The creation of these peat dams reduced the water velocity in the drains and allowed more settlement time. This reduces runoff and improves raw water quality and reliability by improved regulation of supply through the retention effects of the bog. This will result in cost savings at the treatment works as the requirement for chemical treatment to remove colour from the raw water will be reduced. The reduced energy requirements for treating water will contribute to the NI Water Climate Change Objectives and our aims to reduce our carbon footprint and greenhouse gas emissions.

The Garron Plateau Blanket Bog Restoration Project won the Business and Biodiversity Award from Business and the Community NI and was a UK finalist in the Utility Week Environmental Awards in London. In addition NI Water was a partner with IUCN UK (International Union for Conservation of Nature) Peatland Programme for a “European Natura 2000 Award” and was a finalist in this prestigious European award.

## Forestry Management

Forestry activities have the potential to interact both positively and negatively with water resources. Careful planning and management will mitigate against potential negative impacts while maximising the positive aspects of forestry, such as aquatic biodiversity enhancement and the creation of appropriate riparian ecosystems.

Some catchments are more vulnerable than others to forestry felling and replanting activities, due to their particular soils and underlying geology. All land owners, including forest owners, have a responsibility to play their role in conserving and enhancing overall catchment quality.

Extensive areas of Forest Service NI (FS) lands exist within NI Water drinking water catchment areas. FS felling and re-planting activities require careful planning in order to avoid any detrimental impacts on raw water quality which is abstracted for water treatment. In order to minimise risk to water quality, detailed guidelines and best practice methods have been agreed between NI Water and FS to mitigate against any detrimental effect to raw water quality.



**An image taken by drone of the Peatland restoration at Garron Plateau**

## Environmental Management System (EMS) ISO 14001

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 is proud of its continued achievement and compliance with the internationally recognised ISO14001 standard for our Environmental Management System (EMS). The continual improvement and hard work of our functional staff and business areas ensures NI Water maintains strong environmental management compliance as evidenced through an extensive internal audit plan. Our accreditation to the ISO standard since 2003 has been measured and monitored every six months by an independent globally recognised certification body. Our CEO, Board and Executive Committee approve and support NI Water's continued Environmental Policy and commitment to protecting, preserving and improving the natural environment that we share today.

NI Water's Environmental Management System is an integral part of our daily business activities.

## 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 statutory and regulatory standards set out in the Water Supply (Water Quality) Regulations (NI) 2007.

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.

In preparation for the PC15 business plan (covering 2015 – 2021), NI Water revised its approach to identifying Watermains 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 Watermains Infrastructure Investment Methodology (WIIM). Building on the basis of the previous Zonal Studies approach which provided solid analysis of structural and water quality issues, the revised approach draws on corporate data, focusing on customer contacts and customer preferences when identifying and prioritising investment needs.

The Water Mains Rehabilitation programme delivered 449km of mains in the PC13 period (2013 – 2015) and if fully funded, should deliver approximately 900km during the PC15 period.

## Sufficiency of Supply

Approximately 818,000 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 562 million litres of high quality drinking water to customers every day during 2015. For this NI Water utilised 34 sources which include upland Impounding Reservoirs, Boreholes, Rivers and Loughs.

The Water and Sewerage Services (Northern Ireland) Order 2006 requires NI Water to prepare and maintain a Water Resource Management Plan (WRMP) to indicate how water resources will be developed and managed to enable the undertaker to meet its obligations. The Order requires NI Water to review the plan on an annual basis and prepare a revised plan every 5 years or when there is a material change in circumstances.

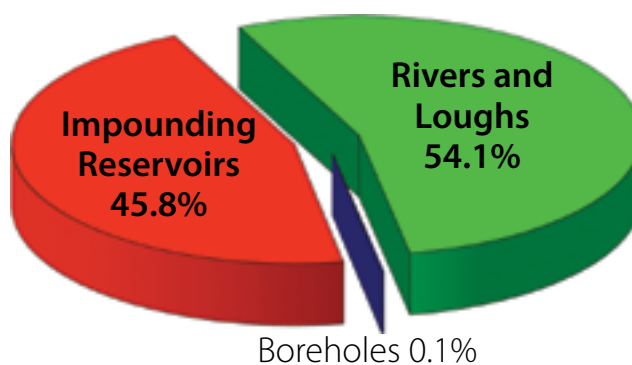
NI Water completed a WRMP to meet this obligation and published this in March 2012.

Following completion of the WRMP the Department for Regional Development (DRD), Northern Ireland Authority for Utility Regulation (NIAUR) and NI Water agreed to combine the WRMP and Drought Planning process into a single document, and then produce one plan on a rolling 6 yearly programme.

The plan will be entitled the “Water Resource and Supply Resilience Plan” (WR & SR Plan). It will set out how NI Water intends to maintain the balance between supply and demand for water over the long term, and the operational and management options and activities available to respond to short term critical events such as droughts and freeze-thaw issues. NI Water has commenced work on the development of the plan, with the Draft Plan due to be issued for consultation in December 2016.

For the period of this report, water supplies in Northern Ireland were obtained from three types of source, 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; and
- Carrying out an inspection programme which examines the sampling, analytical, reporting, water treatment, distribution policies and relevant procedures

In 2015, the technical audit inspection programme included:-

- An audit of Ballinrees Water Treatment Works
- An audit of the Laboratory Information Management System (LIMS)
- An audit of sampling procedures and sample points
- Progress reporting on agreed follow-up action including non-trivial parameter contraventions

DWI made a number of recommendations and suggestions and NI Water has followed up on these issues. DWI will report on the 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 full list of all Water Quality Events notified to the DWI during 2015 is detailed in Appendix 5. This also includes the DWI summary of the 2014-15 Industrial Action major event which affected many customers in Northern Ireland.

## Example Events

### 1. Killyhevlin WTW MCPA Exceedance 5th May 2015 – Significant Event

An operational sample taken from the Killyhevlin Final Water on the 5th May 2015 exceeded the PCV for the pesticide MCPA.

Prior to the sampling event there was warm dry spell mid-April and it is likely that herbicides would have been applied to the catchment area as this is beginning of the normal period for spraying herbicides for weed control. This was followed by periods of heavy rainfall during the end of April and beginning of May which would have caused increased herbicide wash off from the catchment area into Lough Erne.

MCPA, a herbicide, remains in soil and water for several weeks before degrading meaning that the MCPA loading on Killyhevlin WTW remained high for a considerable time.

The DWSP risk assessment had previously identified that pesticide exceedances were a risk in the raw water supply to Killyhevlin WTW and work was ongoing at the time of this exceedance to mitigate this risk. A feasibility study for the introduction of Granular Activated Carbon (GAC) at the Killyhevlin WTW was completed in 2012, this formed part of a series of undertakings for Killyhevlin associated with the Consideration of Provisional Enforcement Order (CPEO/11/02) issued by the Drinking Water

Inspectorate. Work commenced on the construction of 9 GAC filters at Killyhevlin WTW in 2013 and commissioning took place in June 2015. Data gathered from NI Waters' monitoring samples taken in the period since the addition of the GAC filters show more effective removal of MCPA from the raw water with sample results of the final water following treatment showing results well below the regulatory standard (PCV) for MCPA in drinking water.

### 2. Manganese Exceedances on Camderry Road, Omagh 20th April 2015 – Significant Event

A routine audit sample collected from Camderry Road on 20/04/15 exceeded the Health Notification Value (HNV) for manganese. There were no issues at the supplying WTW. A follow up sample along with 2 resamples at adjacent properties also exceeded the HNV.

A collective investigation by metering and leakage into a potential leak identified an illegal connection behind the boundary box at a property on Camderry Road. This was promptly removed by Networks water to prevent further back-siphonage from the borewell into the mains supply and therefore remove the risk of further contamination. Water Fittings regulations team were duly informed and a water regulation inspection was carried out. The manganese exceedances were found to be related to a specific, isolated area and not reflective of the water within the distribution system.

## Regulatory Enforcement

DWI put in place one "Consideration of Provisional Enforcement Order" (CPEO) during 2015:-

- CPEO 15/01 - to seek remedial measures relating to contraventions of the pesticide, MCPA [(4-Chloro-2-methylphenoxy) acetic acid], from water supplied from Derg WTWs.

Two CPEOs, a Provisional Enforcement Order (PEO) and a Regulation 28 Notice issued during 2014 were closed during 2015:-

- CPEO 14/01 - to seek remedial measures relating to hydrogen ion (pH) contraventions for properties in the Straid Road, New Road and Ballymontenagh Road area of Ahoghill. Closed 17/04/15 following the completion of undertakings.
- CPEO 14/02 - to seek remedial measures relating to manganese contraventions in the water supplied from Camlough WTW. Closed 03/11/15 following the completion of undertakings.
- PEO 14/01 - to require remedial measures to be put in place relating to a failure to disinfect water leaving Drumaroad WTW. Closed 14/04/15 following the completion of undertakings.
- Regulation 28 Notice – requiring NI Water to put appropriate measures in place to ensure adequate disinfection is maintained at Rathlin WTW. Closed 10/09/15 following the completion of a number of remedial measures outlined by DWI within the Notice.

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## Quality Assurance

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 and have been awarded United Kingdom Accreditation Service (UKAS) accreditation.

UKAS auditors carry out an annual audit of the NI Water laboratories' quality system.

In order to rapidly detect *Cryptosporidium* oocysts NI Water has a *Cryptosporidium* Analytical Unit at its Altnagelvin Laboratory. This Unit has Drinking Water Inspectorate approval and is instrumental in the development of new accredited methods for the water industry. This unit has also been awarded United Kingdom Accreditation Service (UKAS) accreditation.

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 a Personal Digital Assistant (PDA) based system to produce an enhanced audit trail and to eliminate data transcription errors.

The system uses ruggedized PDAs which incorporate mobile phone technology for communication. A built in barcode scanner is used to scan the labels on the sample bottles and GPS (Global Positioning System) is used to give an accurate location fix and time for each sample as it is collected. As 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 is currently being upgraded to more fully automate the audit trail and chain of custody.

# Water Quality Summary

## NI Water Sites in Service

During 2015, the numbers of NI Water sites in service were:-

Location Type	Number in Service
Water Treatment Works	25
Service Reservoirs	297
Water Supply Zones	50
Authorised Supply Points (see glossary)	25

## Overall Water Quality Testing

98,378 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 in the year 2015. 98,211 of these tests complied with the regulatory standards giving an overall percentage compliance of 99.83%.

Location Type	No of Samples	Regulatory Parameters Analysed	Regulatory Parameters used for Compliance Assessment
Raw Water Source	239	4,297	0
Water Treatment Works	6,356	44,724	19,128
Service Reservoir	15,640	92,598	30,866
Zone (Customer Tap)	7,357	63,076	48,384
Overall	29,592	204,695	98,938

## 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.

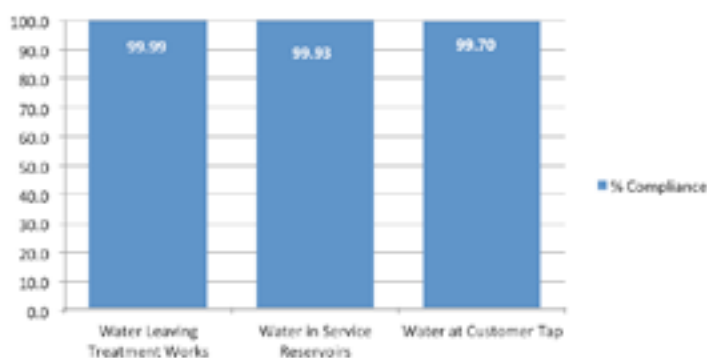
As well as the regulatory required analyses, NI Water also carries out a large number of operational process control determinations, to ensure that its treatment processes are fully optimised.

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.

To ensure the effectiveness of the treatment and chlorination process, the wholesomeness of treated water is regularly examined to ensure the absence of total coliforms 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.

## Overall Microbiological Water Quality



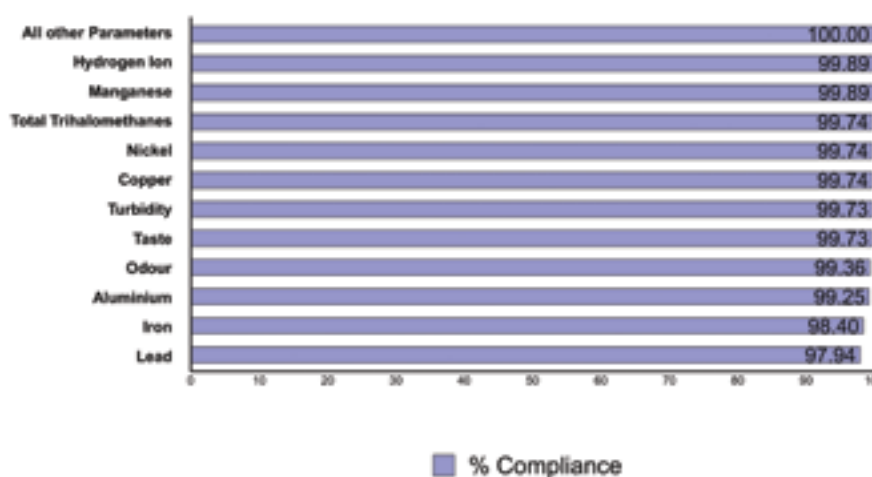
## Physical and Chemical Quality at Customer tap

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:-

- 35,867 physical and chemical tests were assessed against their consent for water samples taken at customer taps or authorised supply points in the year 2015. 35,782 of these tests complied with the regulatory standards giving a compliance of 99.76% 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 on the basis of 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 distribution system.

## Percentage Compliance by Chemical Parameter



## 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	12,712	1	99.99
Indicator parameters	6,416	20	99.70
<b>Total</b>	<b>19,128</b>	<b>21</b>	<b>99.89</b>
<b>Water in Service Reservoirs</b>			
Bacteriological Analysis	30,866	22	99.93
<b>Total</b>	<b>30,866</b>	<b>22</b>	<b>99.93</b>
<b>Water at Customer Taps or Authorised Supply Points</b>			
Bacteriological Anal inc Coliforms	12,905	39	99.70
Zone Chemical Analysis	21,280	79	99.64
Supply Point Chemical Analysis	7,424	4	99.95
Indicator parameters	6,775	2	99.97
<b>Total</b>	<b>48,384</b>	<b>124</b>	<b>99.75</b>
<b>Total Mandatory Parameters</b>	<b>85,575</b>	<b>145</b>	<b>99.83</b>
<b>Total Indicator Parameters</b>	<b>13,363</b>	<b>22</b>	<b>99.84</b>
<b>Overall Water Quality Total</b>	<b>98,378</b>	<b>167</b>	<b>99.83</b>

Explanatory notes of exceedances of the microbiological and chemical quality standards with less than 100% compliance are provided in the following section.

## Water Quality Issues

During 2015 the following main chemical parameters exceeded their prescribed concentration or value at some point.

### 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) and 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 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

watermain and the kitchen tap or in domestic plumbing, there may be a risk of concentrations at the customer tap exceeding the lead standard.

Many older properties still have service pipes and internal plumbing wholly or partly comprised of lead. If a sample is found to exceed the limit for lead in drinking water, the customer, the Public Health Agency, the local Environmental Health Officer and DWI are notified. 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.

NI Water will also 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.

Where water mains are being rehabilitated, NI Water replaces any lead communication pipes encountered to the boundary of the property and the property owner is informed in writing.

The lead PCV (Prescribed Concentration or Value) reduced significantly from the old limit of 25µg/l to the current limit of 10µg/l at the end of 2013. All non-borewell supplies in Northern Ireland are treated with a small amount of orthophosphoric acid, which forms a protective coating over lead pipes, to minimise levels of lead in the water supply. This dosing is reviewed annually for each water treatment works and agreed with the DWI.

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 new 10µg/l Standard**

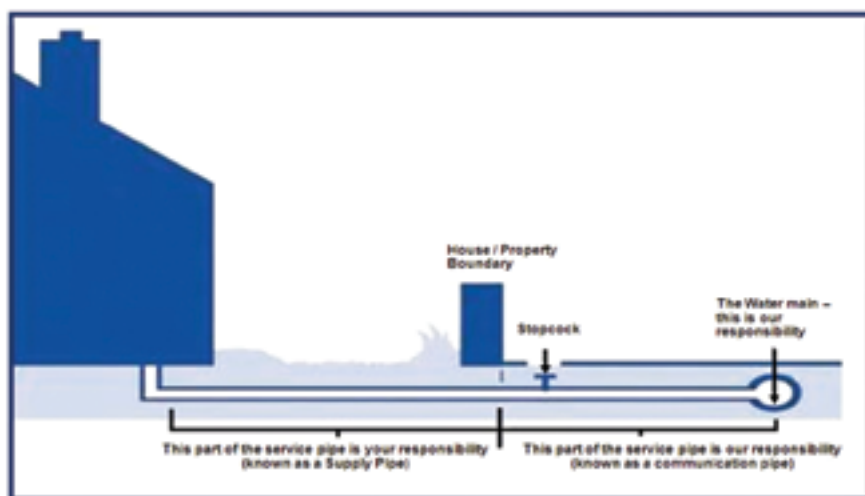


A leaflet on lead in drinking water is available from the NI Water website at [www.niwater.com/about-your-water](http://www.niwater.com/about-your-water)

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

## Responsibility for Pipes

The diagram below shows who is responsible for which pipes.



## 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 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.

## Pesticides

Pesticides include insecticides, herbicides, fungicides and algacides. 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 30 individual pesticides during 2015. NI Water liaises with other regulatory bodies in Northern Ireland such as the Northern Ireland Environment Agency (NIEA) regarding the control of pesticide usage.

The pesticide exceedances were for one of the more commonly used pesticides – MCPA.

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.

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

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.

## 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)

# Investing for the Future

## Asset Management

In October 2014 the Minister for Regional Development provided Social and Environmental Guidance which outlined the priorities for investment for NI Water for the period April 2015 to March 2021 (PC15). From this, the Utility Regulator for Northern Ireland set a % Overall Water Quality Compliance target of not less than 99.79% for water quality during this period. NI Water developed the PC15 business plan to maintain the quality of water through the investment period. The water quality section of the PC15 plan included the laying of 905km of new or renewed watermains, the provision of 3 strategic trunk mains, and the upgrading of water treatment works, service reservoirs and pumping stations.

However, due to public sector funding constraints, the original investments planned for the 2015-16 period were reduced. This affected the investment available for water maintenance and enhancement projects. The NI Water capital programme for 2015-16 was reduced by £15m. Owing to commitments made to initiate enhancement projects and the need to balance expenditure a decision to reduce the water mains programme was made i.e. the watermains renovation target was reduced from 130km to 105km. In the subsequent years of the PC15 Period (2015/16 to 2020/21), the watermains programme affords the opportunity to make up this reduction, subject to available public sector funding. If fully funded, NI Water should deliver approximately 900km of renovated watermains.

Planned investments in water schemes are aimed at maintaining and locally improving our water quality compliance as well as improving levels of service to customers for example, for customers suffering low water pressure. In addition to the investment targeted at improving the quality of service, capital investment is also allocated towards maintaining the serviceability of our assets, now and in the future. The success of these aims will depend on the availability and priority of capital for investment in the drinking water sector.

NI Water operates an integrated asset management system to ensure this investment is properly targeted towards the maintenance of existing assets and the prioritisation of customer needs. In the watermains programme the introduction of the Water Infrastructure Investment Model has allowed NI Water to prioritise expenditure more effectively and help maximise benefits for customers.

NI Water supplies potable water to all of Northern Ireland. A breakdown of water quality by council area detailing capital investment during the reporting period is given at Appendix 4.

## Research, Development and Innovation

NI Water, through its Research, Development and Innovation (RDI) section, undertakes a programme of applying research and technology development. NI Water's RDI investment is targeted to meet business needs by facilitating the transfer of technology and systems developed by others. It is predominantly focussed on incremental innovation, and optimisation i.e. producing more out of existing assets. Innovation, where appropriate, is employed to support the development of standards and best practice, across all of NI Water's activities.

This programme is driven by the desire to maintain and where possible improve water quality, whilst making efficiency gains. It contains projects designed to improve drinking water quality and compliance of our consented discharges while protecting the environment and providing an improved service to our customers.

NI Water, together with other UK Water Companies, employs research bodies such as the United Kingdom Water Industry Research Ltd (UKWIR) to provide a collaborative programme of research. This is tailored to suit the needs of the UK water industry and where required, specifically to suit the needs of NI Water. The research programme covers a wide range of business areas including; Best Practice,

Climate Change, Regulation and Sustainability.

The RDI section also manages projects which require industry specialists to provide expertise to bridge knowledge gaps and solve problems specific to NI Water.

Through the RDI section NI Water collaborates with, and supports local and UK university research.

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

## Water Regulation Background

NI Water was granted an operating license 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 Department for Regional Development (DRD) (Department for Infrastructure (DFI) since 09 May 2016). This change in the delivery of water and sewerage services in Northern Ireland was as a result of new legislation – The Water and Sewerage Services (Northern Ireland) Order 2006 (the 2006 Order).

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

NI Water has an obligation to ensure the Regulations are being complied with and to publish a report on activities associated with customer compliance no later than the 30th June every year.

The Regulations are primarily designed to prevent the waste, misuse, undue consumption, erroneous measurement of water and most importantly to prevent contamination of wholesome water. Owners and occupiers of premises and anyone who installs 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 have to follow the Regulations on behalf of future owners or occupiers.

For the purpose of this return:-

- NI Water is obliged to inspect its customer premises for compliance with the requirements of the Regulations. The Department for Infrastructure (DFI's) Water Policy and Shareholder Division (WPSD) is deemed to be the Regulator of this activity. Non-compliance may result in the NI Water legal team taking formal enforcement action against customers, NI Water and WPSD meet quarterly to discuss issues arising under the Regulations, Compliance activities and contraventions.
- The Water Regulation Advisory Scheme (WRAS) list of Standard Industrial Classification (SIC) codes with related fluid categories shall be used to define categories of non-domestic properties.

NI Water's implementation of these regulations is detailed at Appendix 6 in this report. Detailed below are the numbers of inspections completed, contraventions observed and contraventions awaiting customer resolutions.

Description	Number
*Number of Domestic and Non Domestic Inspections	
• Full Inspections	414
• Revisit Inspection	766
• Drawings Inspection	5
<b>Total number of all Inspections</b>	<b>1185</b>
*Number of Premises/Bodies visited	1186
*Number of Contraventions Active recorded	814
*Number of Contraventions Closed	163
*Number of Outstanding Contraventions	651
*Number of Inspections with outstanding contraventions > 3 months passed to NI Water Legal Department	7

\*Calendar year 2015



# Public Information

## 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 also details of water hardness to enable customers to setup dishwashers etc correctly.

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 type talk on:-  
**03457 440088**

Calls cost 5p per minute plus your phone company's network access charge. Call charges for mobiles may vary.

Customers may also contact Customer Services by email on:-  
**[waterline@niwater.com](mailto:waterline@niwater.com)**  
or via Twitter:- **@niwnews**

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

This site also contains electronic versions of recent Water Quality reports.

## 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)**

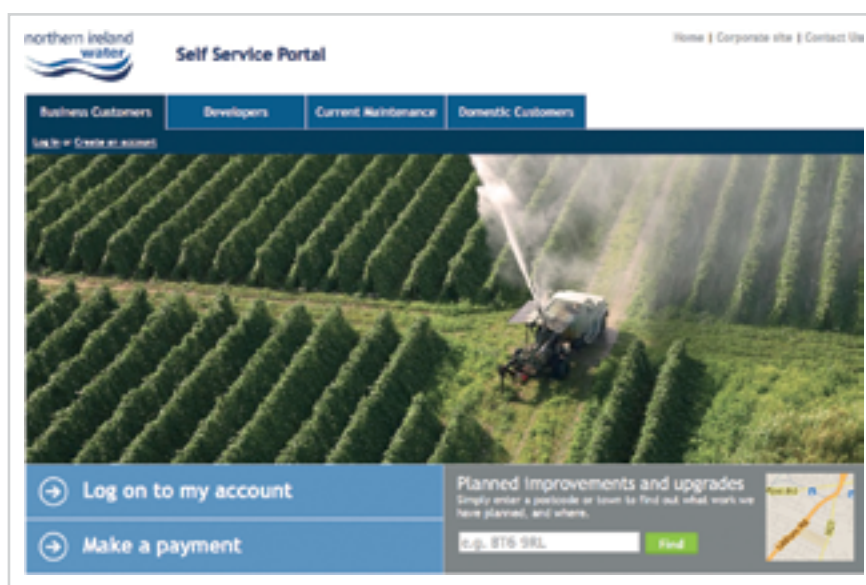
## Self Service Portal

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 the 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 can be found at:-  
**<https://selfservice.niwater.com>**



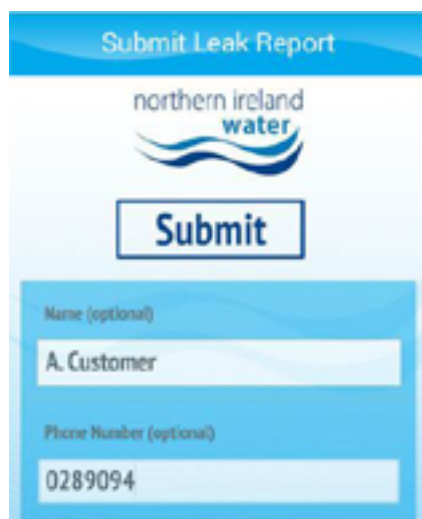
## NI Water Smartphone App to Report Leaks

NI Water relies heavily on the public to report leaks and runs of water, and has recently launched an App for iPhone and Android smartphones. The App will enable the public to report the location and nature of a leak, enabling NI Water to locate and repair it more quickly, which is good news for everyone!

The free App is available from iTunes and the Google play store.

Apple:- <http://itunes.com/apps/NIWater>

Android:- <https://play.google.com/store/apps/details?id=com.SimApp>



The screenshot shows the 'Submit Leak Report' interface of the NI Water app. At the top, there is a blue header with the text 'Submit Leak Report' and the Northern Ireland Water logo. Below the logo is a large blue 'Submit' button. Underneath the button are two input fields: 'Name (optional)' with the text 'A. Customer' and 'Phone Number (optional)' with the text '0289094'.

## Social Media

NI Water is now actively using social media to interact with and inform its customers. This includes:-



### Facebook - niwater

This is updated on a daily basis and in the event of a major incident will be used to communicate directly with customers.



### YouTube

NI Water has its own YouTube channel <http://www.youtube.com/northernirelandwater> which hosts NI Water videos such as "How to protect your pipes", "Saving water in the home" or "Protect from Bogus Callers". It can also be used to host video messages for customers during a major incident.



### Twitter - @niwnews

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

## Major Incident Information

In a major incident or emergency situation (such as the sudden flooding following heavy rainfall in recent years) NI Water can experience a massive increase in demand for information by our customers which would overwhelm the normal systems in place.

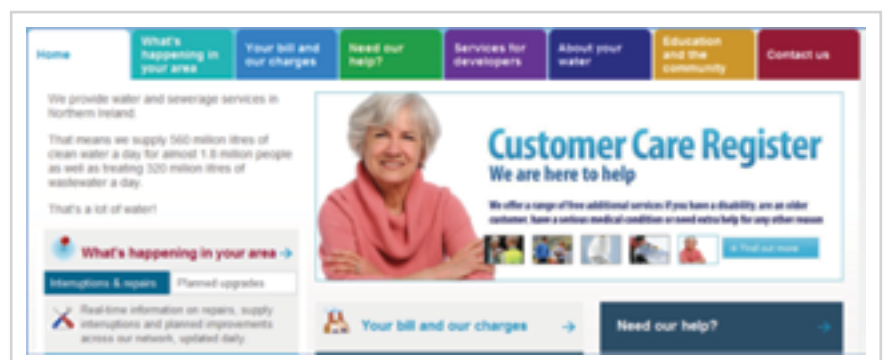
To increase the number of calls answered and the quality of information provided, NI Water has installed a High Volume Call Answering (HVCA) system. This is an “always on” service which monitors all incoming calls to Waterline and takes on the additional load during unexpected peaks. The NI Water HVCA 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.



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) 2007

### 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	Customer taps
Escherichia coli (E. coli)	0	number/100ml	Customer taps
Coliform bacteria	0	number/100ml	Customer taps <b>(i)</b>

**TABLE B.**  
**CHEMICAL PARAMETERS**

Part I:- Directive requirements

Parameters	Concentration or Value (maximum)	Units of Measurement	Point of compliance
Acrylamide	0.10	µg/l	<b>(ii)</b>
Antimony	5	µg Sb/l	Customer taps
Arsenic	10	µg As/l	Customer taps
Benzene	1	µg/l	Customer taps
Benzo (a) pyrene	0.01	µg/l	Customer taps
Boron	1	mg B/l	Customer taps
Bromate	10	µg BrO <sub>3</sub> /l	Customer taps
Cadmium	5	µg Cd/l	Customer taps
Chromium	50	µg Cr/l	Customer taps
Copper	2	mg Cu/l	Customer taps
Cyanide	50	µg CN/l	Customer taps
1,2 Dichloroethane	3	µg/l	Customer taps*
Fluoride	1.5	mg F/l	Customer taps
Lead	10	µg Pb/l	Customer taps
Mercury	1	µg Hg/l	Customer taps
Nickel	20	µg Ni/l	Customer taps

Parameters	Concentration or Value (maximum)	Units of Measurement	Point of compliance
Nitrate	50	mg NO <sub>3</sub> /l	Customer taps
Nitrite	0.5	mg NO <sub>2</sub> /l	Customer taps
Aldrin	0.03	µg/l	Customer taps*
Dieldrin	0.03	µg/l	Customer taps*
Heptachlor	0.03	µg/l	Customer taps*
Heptachlor epoxide	0.03	µg/l	Customer taps*
Other pesticides	0.1	µg/l	Customer taps*
Total Pesticides <b>(iii)</b>	0.5	µg/l	Customer taps*
PAH - Sum of four substances <b>(iv)</b>	0.1	µg/l	Customer taps
Selenium	10	µg Se/l	Customer taps
Tetrachloroethene/Trichloroethene – Sum <b>(v)</b>	10	µg/l	Customer taps*
Total Trihalomethanes <b>(vi)</b>	100	µg/l	Customer taps
Vinyl chloride	0.50	µg/l	<b>(ii)</b>

#### Notes:-

- (i)** NI Water, with the agreement of the Drinking Water Inspectorate, includes Total Coliforms within the Part I:- Directive Requirements table for statistical purposes.
- (ii)** 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.
- (iii)** Total Pesticides:- means the sum of the concentrations of the individual pesticides detected and quantified in the monitoring procedure.
- (iv)** The specified compounds are:-  
 - benzo(b)fluoranthene  
 - benzo(k)fluoranthene  
 - benzo(ghi)perylene  
 - Indeno (1,2,3-cd) pyrene.
- (v)** The parametric value applies to the sum of the concentrations of the individual compounds detected and quantified in the monitoring process.
- (vi)** 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.

**Part II:- National requirements**

<b>Parameters</b>	<b>Concentration or Value (maximum unless otherwise stated)</b>	<b>Units of Measurement</b>	<b>Point of compliance</b>
Aluminium	200	µg Al/l	Customer taps
Colour	20	mg/l Pt/Co	Customer taps
Iron	200	µg Fe/l	Customer taps
Manganese	50	µg Mn/l	Customer taps
Sodium	200	mg Na/l	Customer taps
Tetrachloromethane	3	µg/l	Customer taps
Turbidity	4	NTU	Customer taps

**SCHEDULE 2  
INDICATOR PARAMETERS**

<b>Parameters</b>	<b>Specification Concentration or Value (maximum) or State</b>	<b>Units of Measurement</b>	<b>Point of monitoring</b>
Ammonium	0.5	mg NH <sub>4</sub> /l	Customer taps
Chloride <b>(i)</b>	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	Customer taps, service reservoirs and treatment works
Conductivity <b>(i)</b>	2500	µS/cm at 20°C	Supply point*
Hydrogen ion	9.5	pH value	Customer taps
	6.5 (minimum)	pH value	
Sulphate <b>(i)</b>	250	mg SO <sub>4</sub> /l	Supply point*
Total indicative dose (for radioactivity) <b>(ii)</b>	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:-**

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

micro gramme 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	2015 Samples	No > PCV	% > PCV
Enterococci	No./100ml	388	0	0.00%
E. coli	No./100ml	5160	1	0.02%
1,2 Dichloroethane	µg/l	388	0	0.00%
Aluminium	µg Al/l	1876	14	0.75%
Antimony	µg Sb/l	388	0	0.00%
Arsenic	µg As/l	388	0	0.00%
Benzene	µg/l	388	0	0.00%
Benzo(a)pyrene	ng/l	388	0	0.00%
Boron	µg B/l	388	0	0.00%
Bromate	µg/l	388	0	0.00%
Cadmium	µg Cd/l	388	0	0.00%
Chromium	µg Cr/l	388	0	0.00%
Colour	mg/l Pt/C	1876	0	0.00%
Copper	mg Cu/l	388	1	0.26%
Fluoride	mg F/l	388	0	0.00%
Iron	µg Fe/l	1876	30	1.60%
Lead	µg Pb/l	388	8	2.06%
Manganese	µg Mn/l	1876	2	0.11%
Mercury	µg Hg/l	388	0	0.00%
Nickel	µg Ni/l	388	1	0.26%
Nitrate	mg NO <sub>3</sub> /l	388	0	0.00%
Nitrite	mg NO <sub>2</sub> /l	0*	0*	0.00%
Odour	dilution No	1876	12	0.64%
Selenium	µg Se/l	388	0	0.00%
Sodium	mg Na/l	388	0	0.00%
Taste	dilution No	1876	5	0.27%
PAH - Sum of four substances	µg/l	388	0	0.00%
Tetrachloroethene/Trichloroethene - Sum	µg/l	388	0	0.00%
Tetrachloromethane	µg/l	388	0	0.00%
Total Trihalomethanes	µg/l	388	1	0.26%
Turbidity	FTU	1876	5	0.27%

Indicator parameters		2015 Samples	No > SPEC	% > SPEC
Total coliforms	No./100ml	5160	35	0.68%
Total - Residual disinfectant	mg Cl/l	5160	-	-
Free - Residual disinfectant	mg Cl/l	5160	-	-
Colony Counts 37 (48hrs)	No./1 ml	1876	-	-
Colony Counts 22	No./1 ml	1876	-	-
Ammonium	mg NH <sub>4</sub> /l	1876	0	0.00%
Chloride	mg Cl/l	388	0	0.00%
Hydrogen Ion	pH value	1876	2	0.11%
Sulphate	mg SO <sub>4</sub> /l	388	0	0.00%

\*Results marked as indicative and not reported.

## Water Quality Report for Authorised Supply Points

Schedule 1 parameters	Units	2015 Samples	No > PCV	% > PCV
Cyanide	µg CN/l	232	0	0.00%
Pesticides - Total Substances	µg/l	232	0	0.00%
All other analysed Pesticides	µg/l	6960	4	0.06%

Indicator parameters	Units	2015 Samples	No > SPEC	% > SPEC
Clostridium perfringens (sulph red)	No./100ml	2197	3	0.14%
Conductivity	µS/cm 20	2197	0	0.00%
Total Organic Carbon	mg C/l	232	-	-
Total Indicative Dose	mSv/year	25	0	0.00%
Tritium	Bq/l	25	0	0.00%

## Water Quality Report for Water Treatment Works

Schedule 1 parameters	Units	2015 Samples	No > PCV	% > PCV
Total Coliforms	No./100ml	6356	1	0.02%
E. coli	No./100ml	6356	0	0.00%
Nitrite	mg NO <sub>2</sub> /l	60*	0	0.00%

Indicator parameters	Units	2015 Samples	No > SPEC	% > SPEC
Turbidity	FTU	6356	20	0.31%
Total - Residual disinfectant	mg Cl/l	6356	-	-
Free - Residual disinfectant	mg Cl/l	6356	-	-
Colony Counts 37 (48hrs)	No./1 ml	6356	-	-
Colony Counts 22	No./1 ml	6356	-	-

\*Some results marked as indicative and not reported.

## Water Quality Report for Service Reservoirs

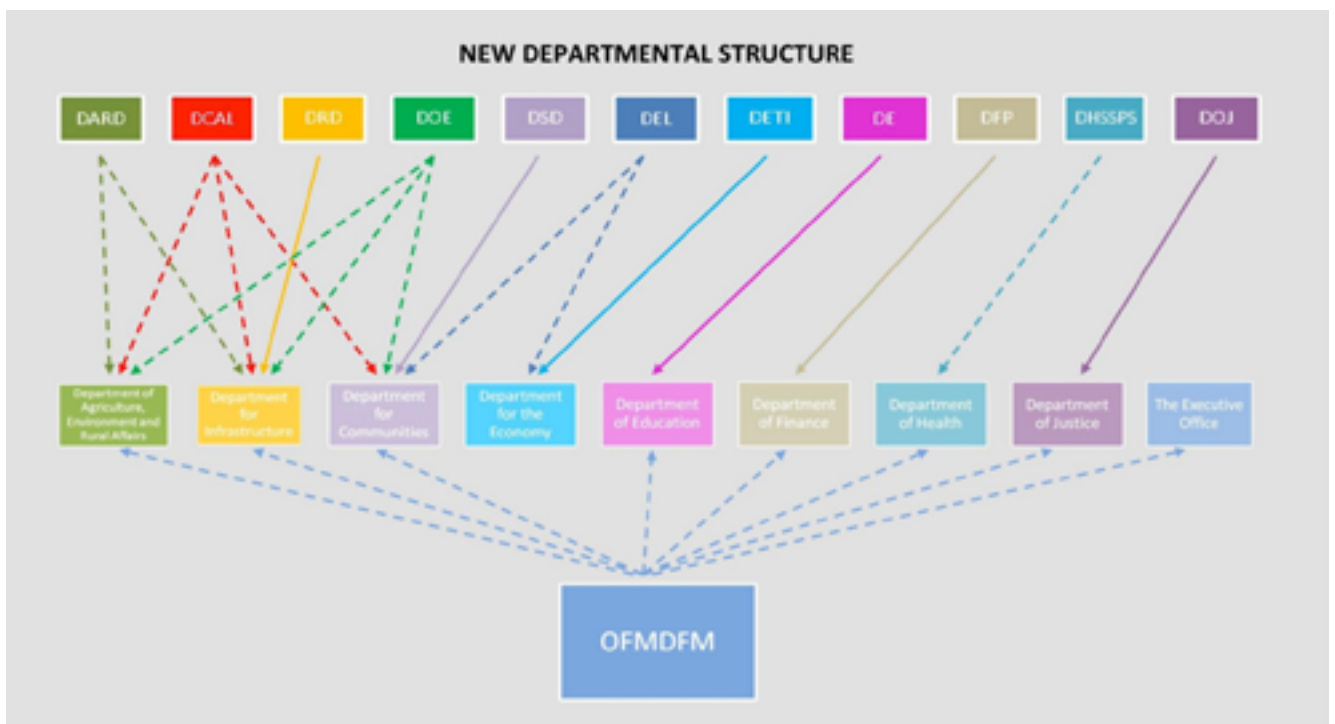
Schedule 1 parameters	Units	2015 Samples	No > PCV	% > PCV
Total Coliforms	No./100ml	15433	20	0.13%
E. coli	No./100ml	15433	2	0.01%

Indicator parameters	Units	2015 Samples	No > SPEC	% > SPEC
Colony Counts 37 (48hrs)	No./1 ml	15433	-	-
Colony Counts 22	No./1 ml	15433	-	-
Total - Residual disinfectant	mg Cl/l	15433	-	-
Free - Residual disinfectant	mg Cl/l	15433	-	-



## Appendix 3

### New Northern Ireland Government Departments in place from May 2016



## Appendix 4

### 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 % 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 99.6% 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 which 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 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.

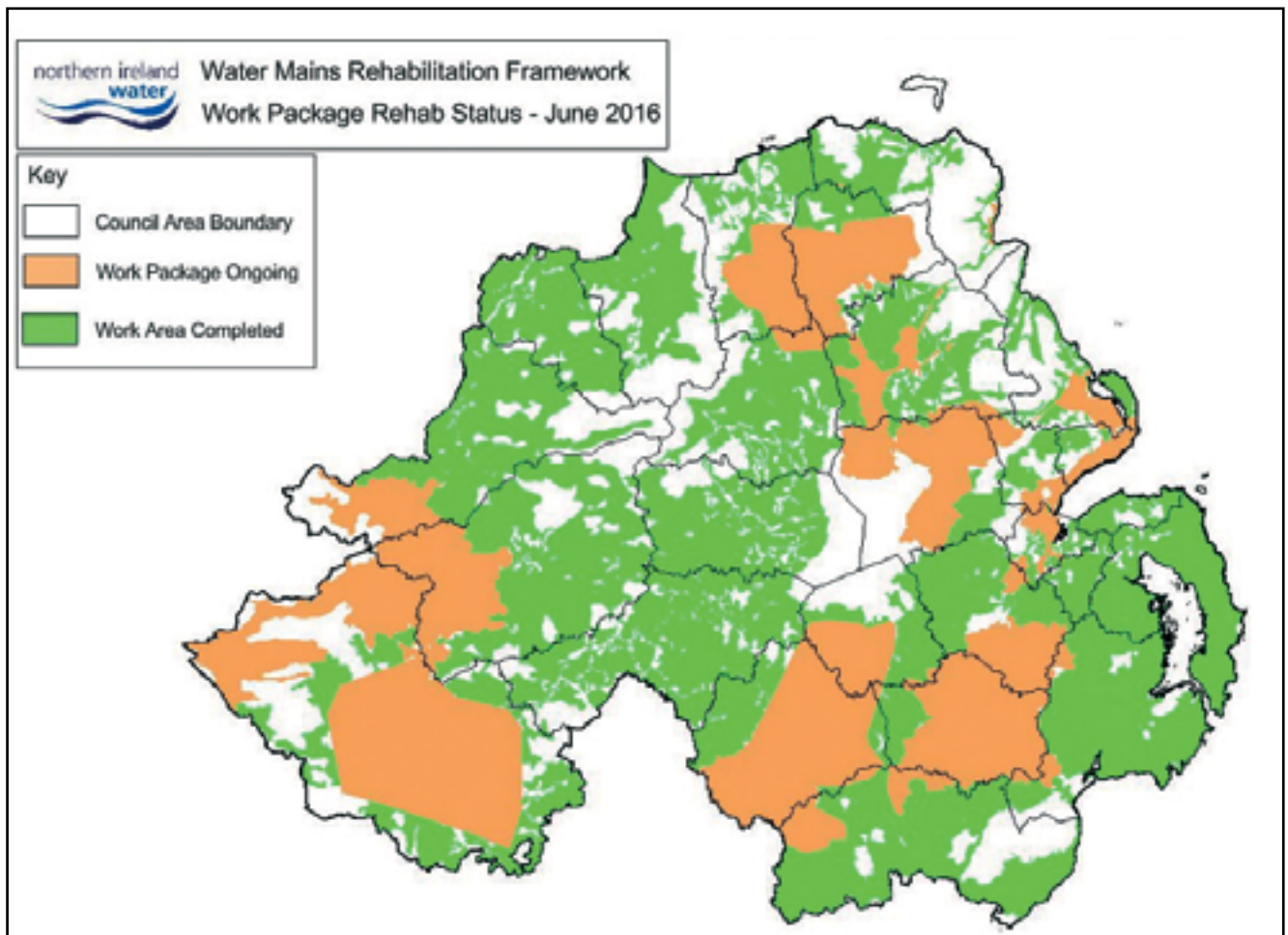
Small variations in water quality compliance performance occur across Northern Ireland. This reflects the need to continue to invest in and to maintain water treatment works, and to improve the water mains network.

NI Water has identified the need to deliver a significant volume of watermains 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 Watermains Rehabilitation Framework, within which it undertakes work on a Northern Ireland wide basis as identified by the zonal study programme of work.

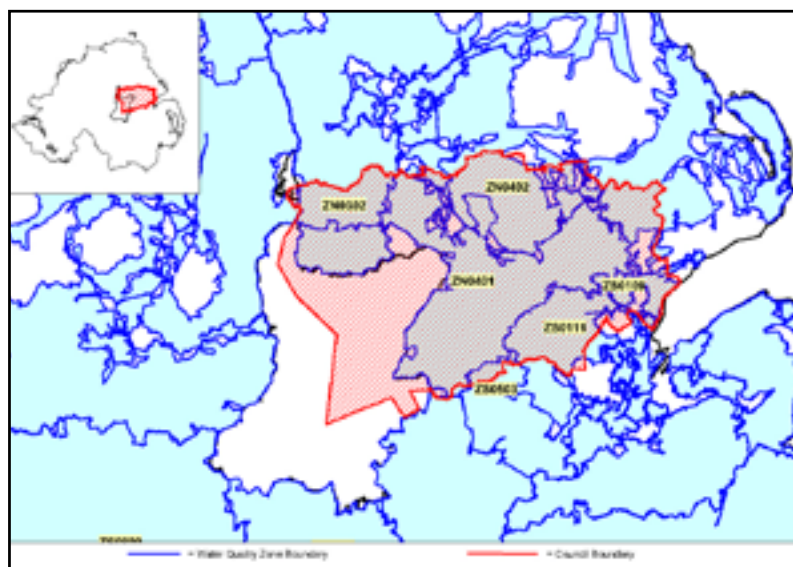
# Watermains Rehabilitation Framework

## Current Work Package Status

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



## Antrim and Newtownabbey Borough Council



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

	Target	2013	2014	2015
Overall Northern Ireland Compliance	99.7%	99.7%	99.8%	99.7%
Antrim and Newtownabbey Compliance	99.7%	99.8%	99.8%	99.8%

### 2015 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	ZS0201	Dorisland Carrick
ZS0106	Dunore Belfast North	ZS0503	Forked Bridge Stoneyford

### 2015 water quality Capital Works Programmes affecting the council area:-

Ballyclare Road Glengormley Watermains Upgrade  
 Hydraulic Model Rebuilds and Project Management 2015-2016  
 MIMP East (Major Incident Mitigation Project East Region) Freeze Thaw Improvements  
 Newtownabbey Zone Watermains Improvements Phase 3  
 Non-Infrastructure Major Works  
 PC15 Abstraction Monitoring  
 PC15 Lead Communication Pipe Replacement Programme  
 PC15 PPRA Review of EP Watermains Rehab Work Packages  
 PC15 Watermains Minor Works Framework  
 PC15 Watermains Rehabilitation Framework  
 PC15 Watermains Rehabilitation WP 10: Belfast North

PC15 Watermains Rehabilitation WP 6: Dungonnell  
 SEMD Surveys PC10 Water  
 Service Reservoir Enhancements  
 Tardree Zone WM Imps  
 Water Resource and Supply Resilience Plan  
 Water Treatment Sites - Water Regulation Compliance & Energy Efficiency Programme  
 Watermains Rehabilitation, New and Replacement incl FTS - Professional Services  
 WIIM Networks Work Packages Development and Verification  
 WTW Effluent Quality  
 WTW Resilience Improvement

## Ards and North Down Borough Council



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

	Target	2013	2014	2015
Overall Northern Ireland Compliance	99.7%	99.7%	99.8%	99.7%
Ards and North Down Compliance	99.7%	99.8%	99.8%	99.8%

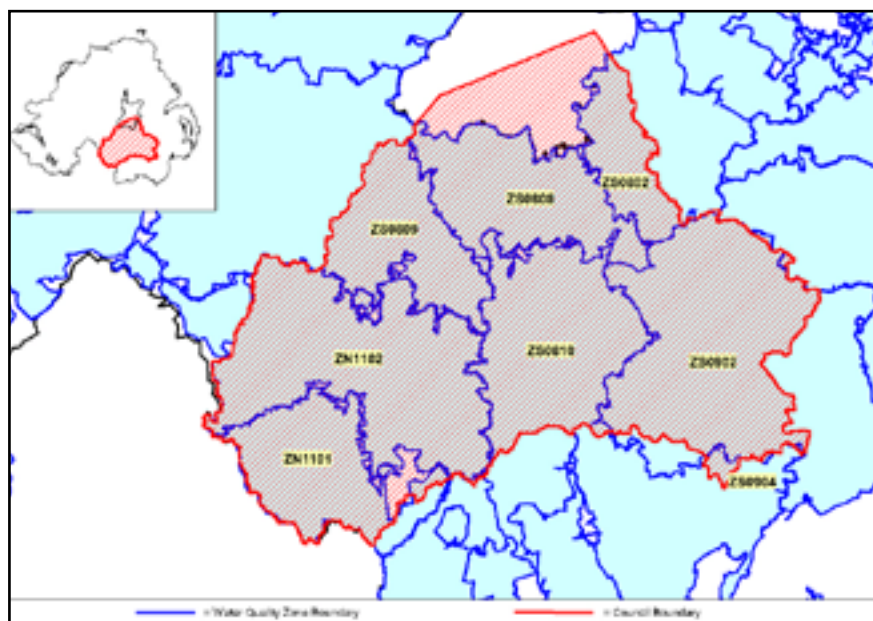
### 2015 water supply zones wholly or partially within the council area:-

Zone Code	Zone Name	Zone Code	Zone Name
ZS0108	Belfast Purdysburn	ZS0501	Drumroad Lisburn
ZS0401	Drumroad Bangor	ZS0601	Drumroad Ballynahinch
ZS0404	Drumroad Ards		

### 2015 water quality Capital Works Programmes affecting the council area:-

Ardview Road Killinchy Watermains Replacement	Replacement Watermains 2014/15 - Reactive, Bundle 2
Drumarden Road Portaferry	SEMD Surveys PC10 Water
Hydraulic Model Rebuilds and Project Management 2015-2016	Service Reservoir Enhancements
MIMP East (Major Incident Mitigation Project East Region)	Water Resource and Supply Resilience Plan
Freeze Thaw Improvements	Watermains Rehabilitation, New and Replacement incl FTS
Non-Infrastructure Major Works	- Professional Services
PC15 Abstraction Monitoring	WIIM Networks Work Packages Development and Verification
PC15 Lead Communication Pipe Replacement Programme	WTW Effluent Quality
PC15 PPRA Review of EP Watermains Rehab Work Packages	WTW Resilience Improvement
PC15 Watermains Minor Works Framework	
PC15 Watermains Rehabilitation Framework	

# Armagh City, Banbridge and Craigavon Borough Council



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

	Target	2013	2014	2015
Overall Northern Ireland Compliance	99.7%	99.7%	99.8%	99.7%
Armagh, Banbridge & Craigavon Compliance	99.7%	99.8%	99.8%	99.8%

## 2015 water supply zones wholly or partially within the council area:-

Zone Code	Zone Name	Zone Code	Zone Name
ZN1101	Clay Lake Keady	ZS0809	Castor Bay Dungannon
ZN1102	Seagahan Armagh	ZS0810	Castor Bay Tandragee
ZS0802	Castor Bay Lurgan	ZS0902	Fofanny Dromore
ZS0808	Castor Bay Craigavon	ZS0904	Fofanny Mourne

## 2015 water quality Capital Works Programmes affecting the council area:-

Ballydougan to Newry Main Link Reinforcement	SEMD Surveys PC10 Water
Carrive Road Quilly Road Mullaghbawn Watermain Replacement	Service Reservoir Enhancements
Castor Bay to Dungannon Strategic Trunk Mains	Tardree Zone WM Imps
Fofanny Banbridge Zone Watermain Improvements Phase 2	Water Resource and Supply Resilience Plan
Hydraulic Model Rebuilds and Project Management 2015-2016	Water Treatment Sites - Water Regulation Compliance & Energy Efficiency Programme
Non-Infrastructure Major Works	Watermains Rehabilitation, New and Replacement incl FTS - Professional Services
PC15 Abstraction Monitoring	WIIM Networks Work Packages Development and Verification
PC15 Lead Communication Pipe Replacement Programme	WP134 High Priority Watermains Ph1
PC15 PPRA Review of EP Watermains Rehab Work Packages	WTW Effluent Quality
PC15 Watermains Minor Works Framework	WTW Resilience Improvement
PC15 Watermains Rehabilitation Framework	
Service Reservoir Assessments - Site Access	
PC15 Watermains Rehabilitation WP1 - Fofanny/North Lisburn South	

# Belfast City Council



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

	Target	2013	2014	2015
Overall Northern Ireland Compliance	99.7%	99.7%	99.8%	99.7%
Belfast Compliance	99.7%	99.8%	99.8%	99.8%

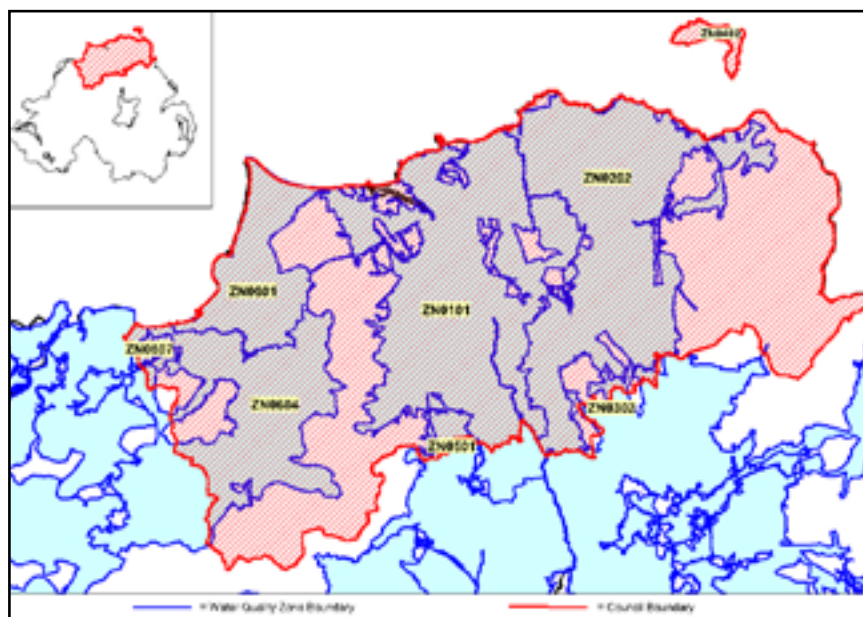
## 2015 water supply zones wholly or partially within the council area:-

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	Dunore Breda North	ZS0404	Drumaroad Ards
ZS0105	Dunore Breda South	ZS0501	Drumaroad Lisburn
ZS0106	Dunore Belfast North	ZS0502	Forked Bridge Dunmurry
ZS0107	Belfast Oldpark	ZS0503	Forked Bridge Stoneyford

## 2015 water quality Capital Works Programmes affecting the council area:-

Ballygomartin North Phase 1 Watermains Improvements	PC15 Watermains Rehabilitation Framework
Ballygomartin South Phase 1 Watermains Improvements	PC15 Watermains Rehabilitation WP 10: Belfast North
Ballsillan Zone Watermains Improvements	PC15 Watermains Rehabilitation WP 2: Forked Bridge Dunmurry
Former Visteon Factory - Watermains extension	PC15 Watermains Rehabilitation WP 8: Belfast South Ph1
Hydraulic Model Rebuilds and Project Management 2015-2016	SEMD Surveys PC10 Water
Lead Pipe Replacement Programme	Service Reservoir Enhancements
MIMP East (Major Incident Mitigation Project East Region)	Water Resource and Supply Resilience Plan
Freeze Thaw Improvements	Water Treatment Sites - Water Regulation Compliance & Energy
Non-Infrastructure Major Works	Efficiency Programme
Oldpark Watermains Improvements	Watermains Rehabilitation, New and Replacement incl FTS -
PC15 Abstraction Monitoring	Professional Services
PC15 Lead Communication Pipe Replacement Programme	WIIM Networks Work Packages Development and Verification
PC15 PPRA Review of EP Watermains Rehab Work Packages	WTW Effluent Quality
PC15 Watermains Minor Works Framework	WTW Resilience Improvement

## Causeway Coast and Glens Borough Council



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

	Target	2013	2014	2015
Overall Northern Ireland Compliance	99.7%	99.7%	99.8%	99.7%
Ballymoney Council Compliance	99.7%	99.8%	99.8%	99.7%

### 2015 water supply zones wholly or partially within the council area:-

Zone Code	Zone Name	Zone Code	Zone Name
ZN0101	Ballinrees Coleraine	ZN0601	Ballinrees Limavady
ZN0202	Altnahinch Bushmills	ZN0603	Carmony Eglinton
ZN0204	Rathlin Island	ZN0604	Caugh Hill Dungiven
ZN0302	Dungonnell Glarryford	ZN0607	Corrody Derry
ZN0501	Moyola Magherafelt		

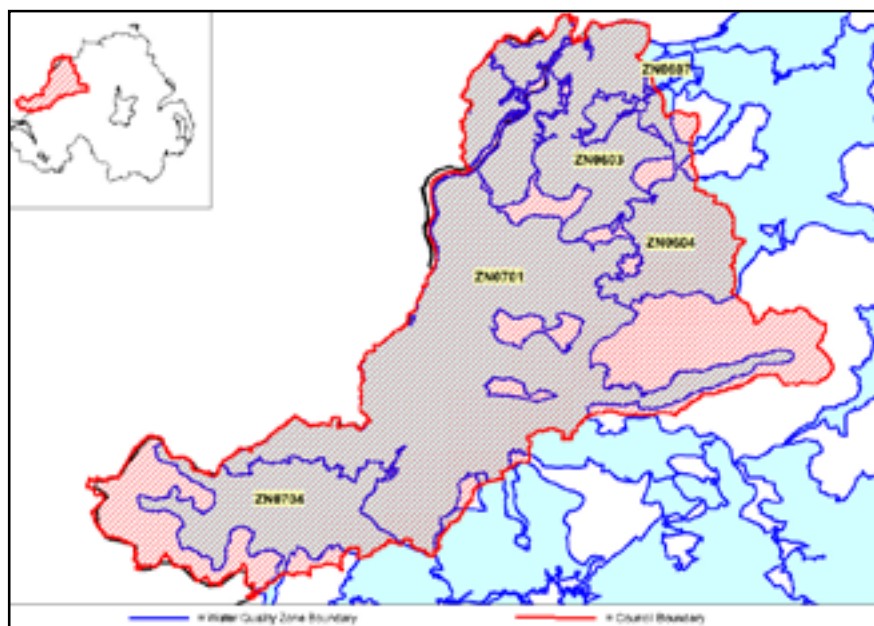
### 2015 water quality Capital Works Programmes affecting the council area:-

A26 Dualling:- Glarryford to A44 (Drones Road) Junction - Watermains replacements  
 Chatham Road, Armoy, Watermains Replacement.  
 Glenlough Pumping Station & Pumping Main  
 Hydraulic Model Rebuilds and Project Management 2015-2016  
 MIMP North (Major Incident Mitigation Project North Region)  
 Freeze Thaw Improvements  
 Moyola Zone Watermains Improvements  
 Non-Infrastructure Major Works  
 PC15 Abstraction Monitoring  
 PC15 Lead Communication Pipe Replacement Programme  
 PC15 PPRA Review of EP Watermains Rehab Work Packages  
 PC15 Watermains Minor Works Framework

PC15 Watermains Rehabilitation Framework  
 Rasharkin Zone Watermains Improvements Phase 2  
 Replacement Watermains 2014/15 - Reactive, Bundle 1  
 SEMD Surveys PC10 Water  
 Service Reservoir Enhancements  
 Water Resource and Supply Resilience Plan  
 Watermains Rehabilitation, New and Replacement including  
 FTS - Professional Services  
 WIIM Networks Work Packages Development and Verification  
 WP134 High Priority Watermains Ph1  
 WTW - Treatability Appraisal Studies  
 WTW Effluent Quality  
 WTW Resilience Improvement



## Derry City and Strabane District Council



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

	Target	2013	2014	2015
Overall Northern Ireland Compliance	99.7%	99.7%	99.8%	99.7%
Derry City & Strabane Compliance	99.7%	99.9%	99.8%	99.8%

### 2015 water supply zones wholly or partially within the council area:-

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

### 2015 water quality Capital Works Programmes affecting the council area:-

Castletown / Koram WPS Upgrade	SEMD Surveys PC10 Water
Caugh Hill, Carmony to Strabane Strategic Link Watermain	Service Reservoir Enhancements
Hydraulic Model Rebuilds and Project Management 2015-2016	Sustainable Catchment Area Management Project (SCAMP Ireland)
MIMP North (Major Incident Mitigation Project North Region)	Water Resource and Supply Resilience Plan
Freeze Thaw Improvements	Water Treatment Sites - Water Regulation Compliance & Energy Efficiency Programme
MIMP West (Major Incident Mitigation Project West Region)	Watermains Rehabilitation, New and Replacement incl FTS - Professional Services
Freeze Thaw Improvements	WIIM Networks Work Packages Development and Verification
Non-Infrastructure Major Works	WP134 High Priority Watermains Ph1
Omagh Phase 2 Watermains Rehab	WTW - Treatability Appraisal Studies
PC15 Abstraction Monitoring	WTW Effluent Quality
PC15 Lead Communication Pipe Replacement Programme	WTW Resilience Improvement
PC15 PPRA Review of EP Watermains Rehab Work Packages	
PC15 Watermains Minor Works Framework	
PC15 Watermains Rehabilitation Framework	

# Fermanagh and Omagh District Council



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

	Target	2013	2014	2015
Overall Northern Ireland Compliance	99.7%	99.7%	99.8%	99.7%
Fermanagh & Omagh Council Compliance	99.7%	99.9%	99.8%	99.9%

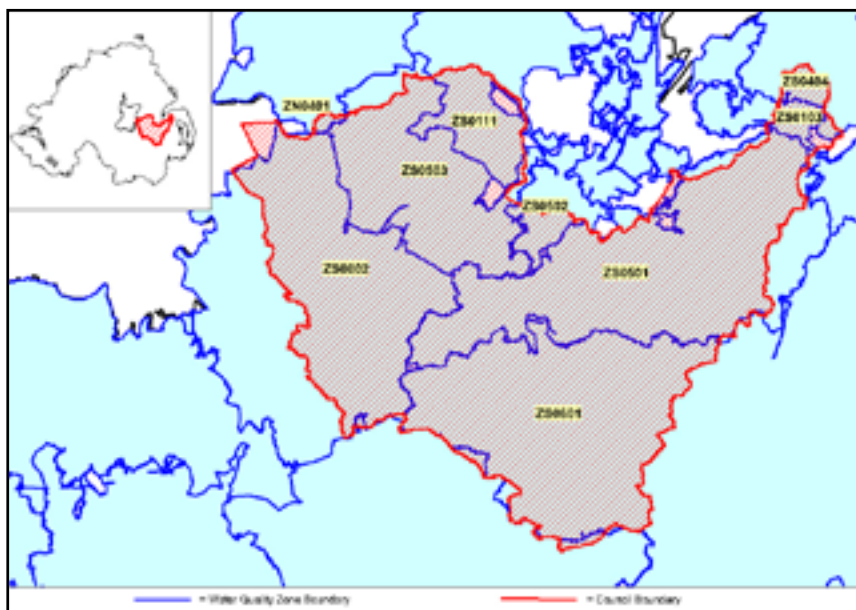
## 2015 water supply zones wholly or partially within the council area:-

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	ZN0802	Killyhevlin Enniskillen
ZN0705	Lough Macrory Beragh		

## 2015 water quality Capital Works Programmes affecting the council area:-

Derg WTW - Upgrade of Filters and Chemical Dosing	PC15 Watermains Rehabilitation Framework
Glenhordial WTW expansion of existing sludge plant	SEMD Surveys PC10 Water
Hydraulic Model Rebuilds and Project Management 2015-2016	Service Reservoir Enhancements
Killyhevlin to Lough Bradan Link Watermain	South / South East Zonal Study South Phase 1 Work Packages
Killyhevlin WTW - GAC	Sustainable Catchment Area Management Project (SCAMP Ireland)
Lough Bradan WTWs Upgrade	Water Resource and Supply Resilience Plan
MIMP West (Major Incident Mitigation Project West Region)	Water Treatment Sites - Water Regulation Compliance & Energy
Freeze Thaw Improvements	Efficiency Programme
Non-Infrastructure Major Works	Watermains Rehabilitation, New and Replacement incl FTS - Professional Services
Omagh Phase 2 Watermains Rehab	WIIM Networks Work Packages Development and Verification
PC15 Abstraction Monitoring	WP134 High Priority Watermains Ph1
PC15 Lead Communication Pipe Replacement Programme	WTW - Treatability Appraisal Studies
PC15 PPRA Review of EP Watermains Rehab Work Packages	WTW Effluent Quality
PC15 Watermains Minor Works Framework	WTW Resilience Improvement

# Lisburn and Castlereagh City Council



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

	Target	2013	2014	2015
Overall Northern Ireland Compliance	99.7%	99.7%	99.8%	99.7%
Lisburn & Castlereagh Compliance	99.7%	99.9%	99.9%	99.8%

## 2015 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	Drumroad Ballynahinch
ZS0111	Dunore Point Hydepark	ZS0802	Castor Bay Lurgan
ZS0404	Drumroad Ards	ZS0902	Fofanny Dromore
ZS0501	Drumroad Lisburn		

## 2015 water quality Capital Works Programmes affecting the council area:-

Hydraulic Model Rebuilds and Project Management 2015-2016	PC15 Watermains Rehabilitation WP 2: Forked Bridge Dunmurry
Lead Pipe Replacement Programme	PC15 Watermains Rehabilitation WP1 - Fofanny/North Lisburn South SEMD
Lisburn South Rural Phase 1 & Dunmurry Watermains improvements	Surveys PC10 Water
Millmount Village Dundonald Watermains Upgrades	Service Reservoir Enhancements
MIMP East (Major Incident Mitigation Project East Region)	Strategic Link - Castor Bay to Belfast
Freeze Thaw Improvements	Water Resource and Supply Resilience Plan
Non-Infrastructure Major Works	Watermains Rehabilitation, New and Replacement incl FTS -
PC15 Abstraction Monitoring	Professional Services
PC15 Lead Communication Pipe Replacement Programme	WIIM Networks Work Packages Development and Verification
PC15 PPRA Review of EP Watermains Rehab Work Packages	WTW Effluent Quality
PC15 Watermains Minor Works Framework	WTW Resilience Improvement
PC15 Watermains Rehabilitation Framework	

## Mid and East Antrim Borough Council



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

	Target	2013	2014	2015
Overall Northern Ireland Compliance	99.7%	99.7%	99.8%	99.7%
Mid & East Antrim Compliance	99.7%	99.8%	99.8%	99.8%

### 2015 water supply zones wholly or partially within the council area:-

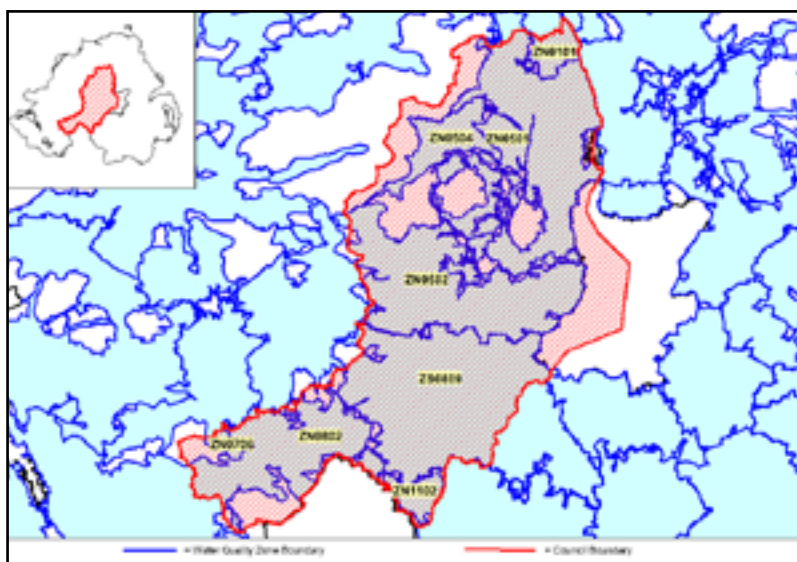
Zone Code	Zone Name	Zone Code	Zone Name
ZN0302	Dungonnell Glarryford	ZN0402	Killylane Ballynure
ZN0303	Dunore Point Ballymena	ZS0109	Dorisland Whiteabbey
ZN0305	Dungonnell Ahoghill	ZS0201	Dorisland Carrick
ZN0401	Dunore Point Antrim		

### 2015 water quality Capital Works Programmes affecting the council area:-

A26 Dualling: Glarryford to A44 (Drones Road) Junction - Watermains replacements  
 Carrickfergus Phase 3 Watermains Improvements Carrickfergus Road, Larne, Water Quality Schemes.Carrickfergus Zone Watermains Improvements Phase 1  
 Dorisland WTW - GAC Feasibility Study  
 Dungonnell Zone Watermains Improvements  
 Hydraulic Model Rebuilds and Project Management 2015-2016  
 Lead Pipe Replacement Programme  
 MIMP East (Major Incident Mitigation Project East Region)  
 Freeze Thaw Improvements  
 MIMP North (Major Incident Mitigation Project North Region)  
 Freeze Thaw Improvements  
 Non-Infrastructure Major Works  
 PC15 Abstraction Monitorin  
 PC15 Lead Communication Pipe Replacement Programme  
 PC15 PPRa Review of EP Watermains Rehab Work Packages  
 PC15 Watermains Minor Works Framework  
 PC15 Watermains Rehabilitation Framework

PC15 Watermains Rehabilitation WP 3: Killylane  
 PC15 Watermains Rehabilitation WP 4: Ballymena Ph1  
 PC15 Watermains Rehabilitation WP 6: Dungonnell  
 PC15 Watermains Rehabilitation WP 7: Carrickfergus  
 Replacement Watermains 2014/15 - Reactive, Bundle 1  
 Replacement Watermains 2014/15 - Reactive, Bundle 2  
 SEMD Surveys PC10 Water  
 Service Reservoir Enhancements  
 Tardree Zone WM Imps  
 Tully Rehab Work Packages.  
 Water Resource and Supply Resilience Plan  
 Water Treatment Sites - Water Regulation Compliance & Energy Efficiency Programme  
 Watermains Rehabilitation, New and Replacement incl FTS - Professional Services  
 WIIM Networks Work Packages Development and Verification  
 WTW - Treatability Appraisal Studies  
 WTW Effluent Quality  
 WTW Resilience Improvement

## Mid-Ulster District Council



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

	Target	2013	2014	2015
Overall Northern Ireland Compliance	99.7%	99.7%	99.8%	99.7%
Mid Ulster Compliance	99.7%	99.9%	99.7%	99.8%

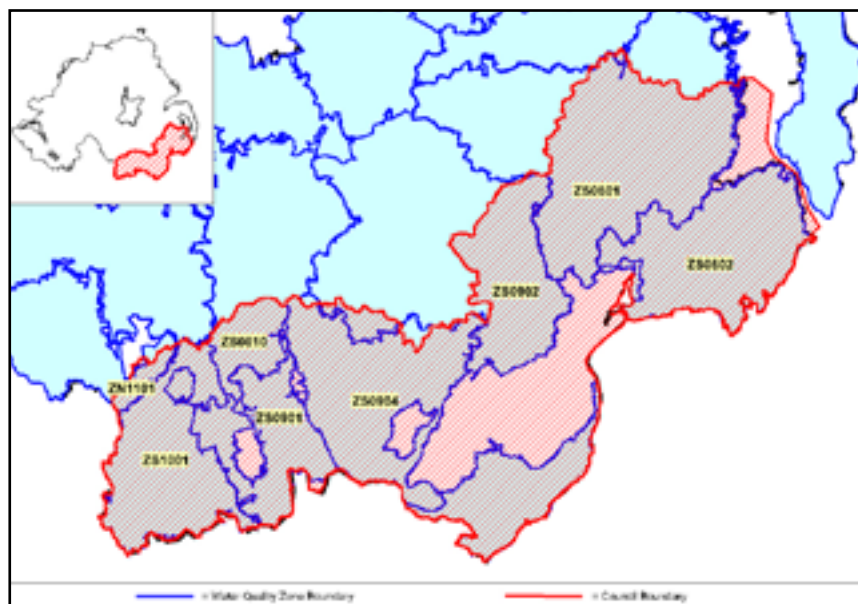
### 2015 water supply zones wholly or partially within the council area:-

Zone Code	Zone Name	Zone Code	Zone Name
ZN0101	Ballinrees Coleraine	ZN0706	Lough Macrory Killyclogher
ZN0501	Moyola Magherafelt	ZN0802	Killyhevlin Enniskillen
ZN0502	Lough Fea Cookstown	ZN1102	Seagahan Armagh
ZN0504	Moyola Unagh Mormeal	ZS0809	Castor Bay Dungannon
ZN0705	Lough Macrory Beragh		

### 2015 water quality Capital Works Programmes affecting the council area:-

A31 Magherafelt By-Pass, Watermains Diversions	PC15 PPRA Review of EP Watermains Rehab Work Packages
Altmore Phase 2 Watermains Rehabilitation	PC15 Watermains Minor Works Framework
Carland to Cookstown Strategic Trunk Main	PC15 Watermains Rehabilitation Framework
Castor Bay to Dungannon Strategic Trunk Mains	PC15 Watermains Rehabilitation WP 8: Belfast South Ph1
Cookstown Phase 2 Watermains Improvements	Replacement Watermains 2014/15 - Reactive, Bundle 2
Cookstown Phase 3 Watermains Improvements	SEMD Surveys PC10 Water
Granville Dungannon Invest NI Watermains Extension	Service Reservoir Enhancements
Hydraulic Model Rebuilds and Project Management 2015-2016	Water Resource and Supply Resilience Plan
MIMP West (Major Incident Mitigation Project West Region)	Water Treatment Sites - Water Regulation Compliance & Energy
Freeze Thaw Improvements	Efficiency Programme
Moyola Zone Watermains Improvements	Watermains Rehabilitation, New and Replacement incl FTS -
Non-Infrastructure Major Works	Professional Services
Omagh Phase 2 Watermains Rehab	WIIM Networks Work Packages Development and Verification
PC15 Abstraction Monitoring	WTW Effluent Quality
PC15 Lead Communication Pipe Replacement Programme	WTW Resilience Improvement

## Newry, Mourne and Down District Council



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

	Target	2013	2014	2015
Overall Northern Ireland Compliance	99.7%	99.7%	99.8%	99.7%
Newry, Mourne & Down Compliance	99.7%	99.8%	99.8%	99.7%

### 2015 water supply zones wholly or partially within the council area:-

Zone Code	Zone Name	Zone Code	Zone Name
ZN1101	Clay Lake Keady	ZS0901	Camlough Newry West
ZS0601	Drumaroad Ballynahinch	ZS0902	Fofanny Dromore
ZS0602	Drumaroad Downpatrick	ZS0904	Fofanny Mourne
ZS0810	Castor Bay Tandragee	ZS1001	Carran Hill Crossmaglen

### 2015 water quality Capital Works Programmes affecting the council area:-

Ballintemple Zone Watermains Improvements  
 Ballydougan to Newry Main Link Reinforcement  
 Crieve Service Reservoir  
 Downpatrick Zone WM Imps  
 Drumaroad WTW Clear Water Tank  
 Fofanny Banbridge Zone Watermains Improvements Phase 2  
 Hydraulic Model Rebuilds and Project Management 2015-2016  
 MIMP East (Major Incident Mitigation Project East Region)  
 Freeze Thaw Improvements  
 Mourne Coast Zone Watermains Improvements  
 Non-Infrastructure Major Works  
 PC15 Abstraction Monitoring  
 PC15 Lead Communication Pipe Replacement Programme  
 PC15 PPRA Review of EP Watermains Rehab Work Packages  
 PC15 Watermains Minor Works Framework  
 PC15 Watermains Rehabilitation Framework

PC15 Watermains Rehabilitation WP1 - Fofanny/North Lisburn South  
 SEMD Surveys PC10 Water  
 Service Reservoir Enhancements  
 Silent Valley Project PH3  
 South Down Zone WM Imps  
 Sustainable Catchment Area Management Project (SCAMP Ireland)  
 Water Resource and Supply Resilience Plan  
 Water Treatment Sites - Water Regulation Compliance & Energy  
 Efficiency Programme  
 Watermains Improvements, Newry, Phase 3  
 Watermains Rehabilitation, New and Replacement incl FTS -  
 Professional Services  
 WIIM Networks Work Packages Development and Verification  
 WP134 High Priority Watermains Ph1  
 WTW Effluent Quality  
 WTW Resilience Improvement

## Appendix 5

### Water Quality Events

#### Major Drinking Water Quality Events in 2015

Date of Major Event	Area and Estimate of Population/Properties Potentially Affected	Nature and Cause of Major Event	Associated Council Area(s)
22 December 2014 - 22 January 2015	Many areas of Northern Ireland, particularly western areas	Major impact on water supply and related water quality issues due to industrial action by some NI Water staff.	Armagh City, Banbridge & Craigavon, Causeway Coast & Glens, Mid & East Antrim, Mid-Ulster, Derry City & Strabane, Fermanagh & Omagh and Newry, Mourne & Down

#### DWI Overview of the Event

The Industrial Action followed from a dispute between the Water Group of Trade Unions (WGTU) and NI Water over pension reform proposals. The members of WGTU voted in favour of a campaign of industrial action. This included an instruction from the WGTU to its members not to participate in on-call and standby rosters, not to participate in any Major Incident Plan, not to perform any overtime and to remove "goodwill", all commencing with effect from 08.00hrs on 22 December 2014.

With the potential for service disruption over the Christmas and New Year period, NI Water instigated a 'Category 1' incident management regime from 08:00hrs on Monday 22 December 2014. After the Industrial Action was suspended on 21 January 2015, the Incident Management Teams were stood down on Thursday 22 January 2015.

The Industrial Action impacted on the operation of Water Treatment Works (WTWs), Service Reservoirs (SRs) and valving and rezoning operations across

Northern Ireland. A number of water treatment works shutdown due to alarms not being responded to out of normal working hours. This impacted on clear water tank levels and hence service reservoir levels in the related supply area.

Alternative water supplies were provided by NI Water in the west of Northern Ireland as the interruptions to the mains water supply increased. A MIP bronze team was set up in the Omagh area to coordinate the delivery of bottled water and the deployment of static tanks in the area.

#### Serious Drinking Water Quality Events in 2015

Date of Serious Event	Area and Estimate of Population/Properties Potentially Affected	Nature and Cause of Serious Event	Associated Council Area(s)
6 - 13 May 2015	Magheraliskmisk SR (29,000 population)	A severe deterioration in water quality occurred after a new trunk main from Castor Bay WTWs to Magheraliskmisk SR was brought into service. The exact cause for this event was undetermined but it was either caused by disturbance of sediment in the original trunk main and/or a lack of adequate flushing of the new main before it was brought into service. NI Water identified a number of learning outcomes which will be implemented in future projects to prevent recurrence of a similar event.	Armagh, Banbridge & Craigavon, Lisburn & Castlereagh

#### Significant Drinking Water Quality Events in 2015

Date of Significant Event	Area and Estimate of Population/Properties Potentially Affected	Nature and Cause of Significant Event	Associated Council Area(s)
9 - 15 January 2015	Camlough WTW (26,000 population)	Contraventions of the turbidity standard in the works final water due to chemical dosing tanks emptying over a weekend, resulting in loss of effective treatment. The event occurred because an operator misinterpreted an alarm.	Newry, Mourne & Down
11 January 2015	Killylane WTW (51,000 population)	Two works shutdowns led to aluminium and turbidity contraventions in the works final water. The normal operational response did not occur due to Industrial Action by some NI Water staff.	Antrim & Newtownabbey and Mid & East Antrim

<b>Date of Significant Event</b>	<b>Area and Estimate of Population/Properties Potentially Affected</b>	<b>Nature and Cause of Significant Event</b>	<b>Associated Council Area(s)</b>
30 January – 05 February 2015	Killylane WTW (51,000 population)	Aluminium, iron and turbidity contraventions occurred in the works final water due to a combination of operational issues. NI Water carried out repairs as soon as they were identified.	Antrim & Newtownabbey and Mid & East Antrim
03 February 2015	Mill Road, Larne (200 properties)	Aluminium, iron, manganese and turbidity contraventions occurred due to operational activities by NI Water and Roads Service. There was consumer concern & correspondence from a local representative. A mains replacement scheme was completed in 2015/16 to improve water quality within the area.	Mid & East Antrim
17 February 2015	Drummaroad WTW (515,000 population)	No cause was determined for a contravention of the aluminium standard in the works final water.	Ards & North Down, Belfast, Lisburn & Castlereagh and Newry, Mourne & Down
5 March 2015	Donaghcloney & Waringstown (6,500 population)	Consumer concern & local media interest in "cloudy water" which was caused by air in the mains water supply following operational work.	Armagh City, Banbridge & Craigavon
10 March 2015	Drummaroad WTW (515,000 population)	An aluminium contravention occurred in the works final water possibly due to under-performance of filters leading to ineffective treatment. NI Water commenced filter refurbishment in 2015.	Ards & North Down, Belfast, Lisburn & Castlereagh and Newry, Mourne & Down
29 – 31 March 2015	Altnahinch WTW (31,000 population)	Aluminium, iron and turbidity contraventions occurred in the works final water due to treatment difficulties following issues with the coagulant dosing.	Causeway Coast & Glens and Mid & East Antrim
02 – 14 April 2015	Belleek WTW (4,800 population)	Pesticide (MCPA) exceedance due to increased level of MCPA in the raw water source caused by pesticide use in the catchment area. A contravention of the individual pesticide standard for MCPA occurred due to lack of adequate pesticide removal treatment. NI Water have carried out an overhaul of the Powdered Activated Carbon (PAC) dosing system to improve MCPA removal in the treatment process.	Fermanagh & Omagh
28 March 2015 – 01 April 2015	Drummaroad WTW (515,000 population)	Aluminium contraventions occurred in the works final water and related supply area due to treatment difficulties.	Ards & North Down, Belfast, Lisburn & Castlereagh and Newry, Mourne & Down
20 April 2015	Camderry Road, Omagh (6 properties)	A significant contravention of the manganese standard occurred due to back-siphonage from a private bore-well into the public water main. An investigation by metering and leakage identified an illegal connection. This was removed by Networks water.	Fermanagh & Omagh
05 May – 22 June 2015	Killyhevlin WTW (76,500 population)	Pesticide (MCPA) exceedance due to increased level of MCPA in the raw water source caused by pesticide use in the catchment area. Lack of adequate pesticide removal treatment led to persistent MCPA contraventions in the works final water. The works has now been upgraded with specific pesticide removal treatment. Samples taken since the addition of the GAC filters show more effective removal of MCPA from the raw water.	Fermanagh & Omagh and Mid Ulster
06 May – 01 June 2015	Camlough WTW (26,000 population)	Pesticide (MCPA) exceedance due to increased level of MCPA in the raw water source caused by pesticide use in the catchment area. Lack of adequate pesticide removal treatment led to MCPA contraventions in the works final water. Camlough WTW has now been removed from service.	Newry, Mourne and Down
15 May – 01 June 2015	Seagahan WTW (34,500 population)	Pesticide (MCPA) exceedance due to increased level of MCPA in the raw water source caused by pesticide use in the catchment area. A contravention of the individual pesticide standard for MCPA occurred in the works final water. Three of the six GAC filters were scheduled for GAC regeneration during 2015/16.	Armagh City, Banbridge & Craigavon
18 May – 10 June 2015	Ballinrees WTW (167,500 population)	Significant increase in taste and odour complaints in Ballinrees WTW supply area.	Causeway Coast & Glens, Derry City & Strabane



<b>Date of Significant Event</b>	<b>Area and Estimate of Population/Properties Potentially Affected</b>	<b>Nature and Cause of Significant Event</b>	<b>Associated Council Area(s)</b>
2 June - 28 October 2015	Derg WTW (39,000 population)	Pesticide (MCPA) exceedance due to increased level of MCPA in the raw water source caused by pesticide use in the catchment area. Contraventions of the individual pesticide MCPA occurred in the works final water. A Provisional Enforcement Order (PEO) was issued by the Inspectorate in relation to the recurring MCPA exceedances at this site. On 16/06/2016 NI Water submitted a series of undertakings to the Inspectorate in relation to PEO/16/01.	Derry City & Strabane and Fermanagh & Omagh
26 June 2015 - Present	Mealough Road, Carryduff (25 properties)	Contraventions of the hydrogen ion (pH) standard occurred due to the presence of cement-lined mains. NI Water relocated the DMA boundary and subsequent samples are now satisfactory.	Lisburn & Castlereagh
10 July 2015	Killylane WTW (51,000 population)	An aluminium contravention occurred in the works final water due to treatment difficulties following the malfunction of a Programmable Logic Control (PLC) system. The PLC system has now been restored.	Antrim & Newtownabbey and Mid & East Antrim
28 July - 30 August 2015	Dorisland WTW (128,500 population)	Iron contraventions occurred in the works final water and related supply area due to treatment difficulties following issues with the acid dosing. NI Water installed a new filter onto the sample line pump at the WTW.	Antrim & Newtownabbey and Mid & East Antrim
31 July 2015	Camlough WTW (26,000 population)	Aluminium contraventions occurred in the works final water and related supply area. No cause was determined. Camlough WTW has now been removed from service.	Newry, Mourne and Down
17 August - 28 September 2015	Ballinrees WTW (167,500 population)	Pesticide (MCPA) exceedance due to increased level of MCPA in the raw water source caused by use in the catchment area. Lack of adequate pesticide removal treatment led to persistent MCPA contraventions in the works final water. NI Water's SCAMP project is to include Ballinrees WTW in a catchment study during 2016/17 period.	Causeway Coast & Glens Derry City & Strabane
19 August 2015	Drumaroad WTW (515,000 population)	A contravention of the turbidity standard occurred after a power cut at the works and was caused by the disturbance of sediment in a break pressure tank which had been completely empty.	Ards & North Down, Belfast, Lisburn & Castlereagh and Newry, Mourne & Down
28 August 2015	Rathlin WTW (300 population)	A value greater than the World Health Organization Index for trihalomethanes was reported due to naturally occurring bromide in the source water.	Causeway Coast & Glens
18 - 28 September 2015	Moyola WTW (54,000 population)	Pesticide (MCPA) exceedance due to increased level of MCPA in the raw water source caused by use in the catchment area. Temporary treatment issues led to two successive MCPA contraventions in the works final water. NI Water's SCAMP project is to include Moyola WTW in a catchment study during 2016/17 period.	Mid-Ulster
30 September - 18 October 2015	Carn Road, Meigh (44 properties)	There were significant contraventions of the odour parameter (petrochemical) in the Carn Road area after contamination of the mains by oily water. There was local media interest. NI Water provided bottled water to all affected properties during the event as advised by the Public Health Agency.	Newry, Mourne and Down
2 October 2015	Drumaroad WTW (515,000 population)	Treatment difficulties led to an aluminium contravention above the Health Notification Value in the works final water.	Ards & North Down, Belfast, Lisburn & Castlereagh and Newry, Mourne & Down
16 - 23 October 2015	Moneybrannon Road, Coleraine (2 properties)	A "Boil Water Before Use" notice was issued to 2 properties following recurring coliform bacteria contraventions.	Causeway Coast & Glens
9 November 2015	Ballinrees WTW (167,500 population)	Treatment difficulties led to an aluminium contravention in the works final water.	Causeway Coast & Glens and Derry City & Strabane
9 November 2015	Caugh Hil WTW (72,000 population)	Treatment difficulties led to iron and trihalomethane contraventions in the works final water. NI Water has scheduled Caugh Hill WTW for base maintenance work.	Causeway Coast & Glens and Derry City & Strabane
23 November 2015	Dungonnell WTW (30,500 population)	Treatment difficulties led to an aluminium contravention in the works final water. NI Water has scheduled Dungonnell WTW for base maintenance work.	Causeway Coast & Glens and Mid & East Antrim

Date of Significant Event	Area and Estimate of Population/Properties Potentially Affected	Nature and Cause of Significant Event	Associated Council Area(s)
02 December 2015 – Present	Glebe Road, Randalstown	Contraventions of the hydrogen ion (pH) standard occurred due to the presence of cement-lined mains.	Mid & East Antrim

### Minor Drinking Water Quality Events in 2015

Date of Minor Event	Area and Estimate of Population/Properties Potentially Affected	Nature and Cause of Minor Event	Associated Council Area(s)
18 January 2015	Carran Hill WTW (14,000 population)	Local political interest following a newspaper report regarding the contamination of Lough Ross (raw source for Carran Hill WTW) by illegal fuel laundering operations.	Newry City, Mourne & Down
04 February 2015	Lough Fea WTW (43,000 population)	A minor contravention of the hydrogen ion (pH) standard was reported.	Mid-Ulster
12 February 2015	Lough Fea WTW (24,000 population)	Hydrogen ion (pH), iron and turbidity contraventions due to low level in the clear water tank.	Mid-Ulster
11 March 2015	Fofanny WTW (103,000 Population)	No cause was determined for a Clostridium perfringens contravention. All resamples were satisfactory.	Newry City, Mourne & Down
01 April 2015	Juniper Hill Caravan Park	A coliform bacteria contravention occurred after a mains tie-in.	Causeway Coast & Glens
05 April 2015	Drumaroad WTW (515,000 population)	No cause was determined for a Clostridium perfringens contravention. All resamples were satisfactory.	Ards & North Down, Belfast, Lisburn & Castlereagh and Newry, Mourne & Down
16 April 2015	Dunore Point WTW (513,500 population)	No cause was determined for a Clostridium perfringens contravention. All resamples were satisfactory.	Antrim & Newtownabbey, Ards & North Down, Belfast, Lisburn & Castlereagh, and Mid & East Antrim
28 October 2015	Drumaroad WTW (515,000 population)	No cause was determined for a coliform bacteria contravention. All resamples were satisfactory.	Ards & North Down, Belfast, Lisburn & Castlereagh and Newry, Mourne & Down
10 November 2015	Donegore SR (190 properties)	Alternative Water Supplies were provided following unsuccessful operational work.	Antrim & Newtownabbey
22 December 2015	Glenhordial WTW (33,500 Population)	A turbidity contravention occurred due to unrepresentative sampling. All resamples were satisfactory.	Fermanagh & Omagh, Mid Ulster

### Not Significant Drinking Water Quality Events in 2015

Date of Not Significant Event	Area and Estimate of Population/Properties Potentially Affected	Nature and Cause of Not Significant Event	Associated Council Area(s)
21 January 2015	Caugh Hill WTW (72,000 population)	A turbidity contravention occurred due to unrepresentative sampling. All resamples were satisfactory.	Causeway Coast & Glens and Derry City & Strabane

<b>Date of Not Significant Event</b>	<b>Area and Estimate of Population/Properties Potentially Affected</b>	<b>Nature and Cause of Not Significant Event</b>	<b>Associated Council Area(s)</b>
04 February 2015	Lough Bradan WTW (47,000 Population)	A turbidity contravention occurred due to unrepresentative sampling. All resamples were satisfactory.	Fermanagh & Omagh, Mid Ulster and Derry City & Strabane
05 February 2015	Dungonnell WTW (30,500 population)	An iron contravention occurred due to unrepresentative sampling. All resamples were satisfactory.	Causeway Coast & Glens and Mid & East Antrim
12 February 2015	Killyhevlin WTW (76,500 population)	A turbidity contravention occurred due to unrepresentative sampling. All resamples were satisfactory.	Fermanagh & Omagh and Mid Ulster
22 February 2015	Caugh Hill WTW (72,000 population)	A turbidity contravention occurred due to unrepresentative sampling. All resamples were satisfactory.	Mid Ulster
23 February 2015	Dorisland WTW (128,500 population)	A turbidity contravention occurred due to unrepresentative sampling. All resamples were satisfactory.	Antrim & Newtownabbey, Belfast and Mid & East Antrim
23 February 2015	Clay Lake WTW (9,000 Population)	A turbidity contravention occurred due to unrepresentative sampling. All resamples were satisfactory.	Armagh City, Banbridge & Craigavon and Newry, Mourne & Down
23 February 2015	Seagahan WTW (34,500 population)	A turbidity contravention occurred due to unrepresentative sampling. All resamples were satisfactory.	Armagh City, Banbridge & Craigavon
23 February 2015	Carran Hill WTW (14,000 population)	A turbidity contravention occurred due to unrepresentative sampling. All resamples were satisfactory.	Armagh City, Banbridge & Craigavon and Newry, Mourne & Down
24 February 2015	Killyhevlin WTW (76,500 population)	A turbidity contravention occurred due to unrepresentative sampling. All resamples were satisfactory.	Fermanagh & Omagh and Mid Ulster
14 March 2015	Derg WTW (39,000 population)	A turbidity contravention occurred due to unrepresentative sampling. All resamples were satisfactory.	Newry City, Mourne & Down
16 March 2015	Lough Fea WTW (43,000 population)	A turbidity contravention occurred due to unrepresentative sampling. All resamples were satisfactory.	Fermanagh & Omagh and
16 March 2015	Killylane WTW (51,000 population)	An iron contravention occurred due to unrepresentative sampling. All resamples were satisfactory.	Mid Ulster
16 March 2015	Dorisland WTW (128,500 population)	A turbidity contravention occurred due to unrepresentative sampling. All resamples were satisfactory.	Antrim & Newtownabbey, Belfast and Mid & East Antrim
12 August 2015	Glenhordial WTW (33,500 Population)	A turbidity contravention occurred due to unrepresentative sampling. All resamples were satisfactory.	Derry City & Strabane and Fermanagh & Omagh
17 August 2015	Lough Fea WTW (43,000 population)	An iron contravention occurred due to unrepresentative sampling. All resamples were satisfactory.	Mid-Ulster
05 September 2015	Drumaroad WTW (515,000 population)	A turbidity contravention occurred due to unrepresentative sampling. All resamples were satisfactory.	Ards & North Down, Belfast, Lisburn & Castlereagh and Newry, Mourne & Down
30 November 2015	Glenhordial WTW (33,500 Population)	A turbidity contravention occurred due to unrepresentative sampling. All resamples were satisfactory.	Fermanagh & Omagh and Mid Ulster

## Appendix 6

### Water Supply (Water Fittings) Regulations (NI) 2009 Enforcement Policy

NI Water's customer leaflet "Water Fittings Regulations" details why the Water Supply (Water Fittings) Regulations exist and highlights to customers their obligations under the Regulations. A web page has been set up on the NI Water web site for customers where they can download the regulations, guidance notes, information leaflets and notification forms. Both the leaflets and web pages provide customers with a valuable insight to and appreciation of what the Regulations mean to them, the benefits in protecting drinking water supplies and the potential consequences of non-compliance. Customers are advised both online and in leaflets that before they commence certain plumbing installations or alterations they must first notify NI Water in writing. 10 days advance notice is required before work can commence. If customers do not hear from NI Water within 10 working days of writing to us then consent is 'deemed' to have been given and the work can proceed. NI Water promotes and advocates the benefits of customers using Approved Contractors (AC's) 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).

NI Water has a team of 5 customer facing water regulation inspectors across the province; the team is directly managed by an operational Field Manager and all activities are overseen by a Senior Engineer.

NI Water has allocated each non domestic customer a fluid category rating which was derived from Standard Industrial Classification (SIC) codes and also guidance provided by the Water Regulation Advisory Scheme (WRAS). A proactive inspection programme is carried out each year with inspection intervals based on national 'Best Practice' documentation issued to the water authorities by WRAS and accepted by the Department for Environment, Food and Rural Affairs (DEFRA).

The Water Fittings Regulation team has systems and processes in place which are used to schedule and report on inspections, repeat inspections, their findings, contraventions and improvement notices. The Regulation team regularly liaises with external customers, scientific services and networks water teams within the company regarding compliance and non-compliance with the regulations. The team also liaises with other GB water company regulation teams and water industry expert groups to ensure a consistent application of the Regulations.

NI Water will only consider applying to the Regulator (WDPD) within DFI for a relaxation of requirements in exceptional circumstances and not as a result of failure or lack of due diligence by customers to comply with their legal obligations under the Regulations.

### NI Water Customer Base

Base Data, using NIAUR 2015 Annual Information Return (AIR) figures:-

Description	Number
**Total number of connected properties	839,710
**Total number of new connections from 1 Jan 2015 – 31 Dec 2015	5,202
Up to and including 32mm dia.	36
Over 32mm dia.	

\*\*Financial Year (New Connections team)

### Compliance Data

#### Staff and Training

Number of staff involved in enforcement.

Description	Number
Spending more than 75% of time	6
Spending between 50% and 75% of time	1
Spending between 0% and 5% of time	0

All Water Fittings Regulation team members including line management will have attended one or more of the courses detailed below and attained qualifications as certified by the training organisations or award body. As a minimum all Regulation Compliance staff are expected to have passed the City and Guilds qualification in Water Fittings Regulations for Compliance staff. Any change of staff will be conditional on new team members undertaking and passing the Water Regulation C&G qualification:-

- C&G Water Supply (Water Fittings) Regulations for Compliance Staff
- Introduction into RPZ installations (Reduced Pressure Zone Devices)

### Promotion of the Regulations

As a fully subscribing member of WRAS, NI Water has representation on the WRAS Board, Technical Committee and Technical Support Group national forums which each meet 4 times per year.

NI Water uses WRAS for advice on the interpretation of the Regulations where unusual installations are discovered or where a dispute with an installer/manufacture occurs regarding the particular meaning of a certain regulation. Participation on this national stage ensures that NI Water like other water suppliers is applying the Regulations consistently across its customer base. It also provides a very useful networking forum where NI Water and other water suppliers can field difficult and complex questions and receive comprehensive and timely feedback.

A Water Regulation web page is available on the company web site (<http://www.niwater.com/water-fittings-regulations>) for both domestic and non-domestic customers to refer to. The site contains Regulation specific background information, leaflets in PDF format and customer notification forms. An official Water Regulation e-mail address has also been provided to facilitate customer enquiries.

## Notifi ations

Description	Number
**Total No. of water connection application forms received between 1 Jan 2015 – 31 Dec 2015	7,913
**Total No. of new connections made between 1 Jan 2015 – 31 Dec 2015	5,238
*Total number of written customer notifications other than those associated with new connections applications Reduced Pressurised Zone Valves (RPZ) etc.	22

\*Calendar year

\*\*Financial year

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 can be obtained from the NI Water website, completed and returned to the address detailed on the form. The list of work that cannot commence without advance notification can be obtained by referring to the Water Fittings Regulations and is detailed under Regulation 5. NI Water will not unreasonably withhold consent for any work but it may be granted subject to conditions, which must be followed. If customers do not hear from NI Water within 10 working days of writing to us, consent is deemed to have been given and work may proceed.

Northern Ireland Water recommends that customers use an approved plumbing contractor when installing, altering or repairing plumbing systems, water fittings and water-using appliances.

## 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 Water Supply (Water Fittings) Regulations (Northern Ireland) 2009.

NI Water recommends customers use approved plumbing contractors who are members of an approved contractors' scheme. These include firms and individuals who are members of the WaterSafe scheme funded by the water industry including NI Water. WaterSafe is a dedicated search facility bringing together thousands of qualified contractors employed by plumbing businesses from the existing Approved Contractors scheme across the UK. WaterSafe can be contacted by telephoning **0333 2079030** or by referring to [www.watersafe.org.uk](http://www.watersafe.org.uk). The Scottish and Northern Ireland Plumbing Employers Federation (SNIPEF) **Plumbing Industry Licensing Scheme** is also a long standing approved contractor scheme which NI Water also recommends. To find a SNIPEF Licensed Plumber in your area simply enter your postcode or town on their web site [www.needaplumber.org.uk](http://www.needaplumber.org.uk) or contact SNIPEF on **0131 556 0600**.

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.

## Approved Contractors

Description (Number)	2011	2012	2013	2014	2015
No of members in Northern Ireland.	82	74	71	72	72
No of members in Northern Ireland who are members of the Plumbing Industry Licensing Scheme (PILS), i.e. APHE,CIPHE	72	65	27	27	58
No of members in WaterSafe			35	36	38
No of members in Northern Ireland awaiting approval as approved members of the Plumbing Industry Licensing Scheme. Do not yet meet the criteria to be Licensed or WaterSafe	10	9	9	9	14

• Financial Year from SNIPEF.

## Inspections (Other than those arising from Notification)

Description	Number 2014	Number 2015
*Total number of Domestic and Non-Domestic Inspections	1320	1185
*Total number of active Contraventions recorded in year	1775	814
*Total number of closed Contraventions in year	725	163
*Total Number of outstanding contraventions in year	1053	651

\* 2015 Calendar year

Contraventions found on all property types can vary greatly, some typical examples are listed below:-

- Failure to comply with Regulation 5 – Notifications
- Water fittings non-compliant with Regulation 4
- Storage cisterns having the wrong type of Air Gap fitted
- Overflows running to waste in non-visual areas
- Dead legs on pipe-work
- Failure to install servicing valves at float valves
- Insulation and labelling of pipe-work
- Cross connections between public and private water supplies (Bore Wells linked to NI Water supplies within private premises)
- Rain Water Harvesting systems not being installed in compliance with British Standards and the Regulations
- Shallow service pipes providing insufficient protection from ground frost penetration

## Compliance Actions

NI Water through its Compliance activities has a graduated process of engaging customers. Appointment letters are issued to customers and these are followed by inspection report findings which may include recommendations or improvement notices. Customers are given an adequate period of time to comply with notices depending on the level of risk to water supplies associated with the contraventions. Failure to comply with these requests will generate further repeat inspections and notifications; where these requests are not complied with then a non-compliance report is forwarded to the NI Water legal team for appropriate action. 7 cases have been forwarded to NI Water legal for consideration as a result of outstanding contraventions.

## Disputes

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

## General Information

### Assessed number of high risk premises connected to the NI Water distribution network (i.e. Class 4 and 5 Fluid Category (FC) 302)

There are Circa 40,000 FC4&5 premises across Northern Ireland, NI Water inspected 1,185 of these premises during the reporting year.

### Number of Reactive Water Regulation inspections (7) attributed to water quality incidents and NI Water observations

Date	Address
Jan-15	Quarry Industry
Feb-15	Heavy Manufacturing Industry
Mar-15	Aerospace Industry
Apr-15	Food Production Factory
Apr-15	Agricultural Show
May-15	MOD/Police Establishment
June-15	Animal Feed Storage Facilities
July-15	Commercial Dry Cleaning Organisation
Aug-15	Sporting Pavilion
Sept-15	Harbour Terminal
Oct-15	Regional Hospital
Nov-15	Tourist Visitor Centre
Dec-15	Pharmaceutical Business

**Information from Connect 2** – Connect 2 is the software system NI Water uses to drive a proactive risk based inspection programme, record findings and advise or direct customers as to what corrective action is required to bring their systems into compliance with the Regulations. NI Water commenced preparations to consider the upgrade or replacement of the existing Connect 2 system which is built on de-supported IT platforms.

In addition to proactive inspections the Water Fittings Regulation team also undertook reactive inspections as a result of water quality concerns following sample failures. The reactive inspections were carried out following requests for assistance from NI Water staff. The team also conducts occasional reactive inspections as a result of concerns or requests for assistance from customers and colleagues.

### Action taken by NI Water

Reports are submitted to NI Water scientific and operational teams and copies are made available to the Regulator. Customers are required to take remedial action to provide whole site protection and are given Water Fittings Regulation compliance advice.

### Reporting Year Recap

Since the formation of NI Water and the introduction of the new Water Fittings Regulations in August 2009 NI Water, Water Fittings Regulations team has in the last reporting year:-

- Drafted and submitted responses to consultations associated with the draft "Water Bill" and suggested amendments to proposals associated with lead pipe replacement incentive schemes
- Continued to update as required the NI Water "Water Fittings Regulation" web page and literature necessary for the Compliance of the regulations and customer compliance guidance
- Provided a facility on the company website for customers to locate their nearest approved plumbing contractor as registered through WaterSafe ([www.watersafe.org.uk](http://www.watersafe.org.uk)) and SNIPEF ([www.needaplumber.org](http://www.needaplumber.org))
- Continued to contribute specialist advice for inclusion in NI Water publications including the winter preparation campaign
- Continue to promote compliance with the Water Regulations at every opportunity and attended conferences, trade shows and agricultural shows as opportunities present pending availability of resource
- Continue to participated in water industry national working groups to further explore opportunities to promote regulatory consistency, customer notifications and performance standards reporting across the industry
- Report to DFI's (Regulator), along with other "Stakeholders", on a Quarterly/Yearly basis

### Looking Forward

- Continuously develop processes and documentation relating to Water Fittings Regulation inspections and enforcement
- Liaise with NI Water legal team regarding the implementation of a compliance framework with a view to making this publically available on the NI Water web site
- NI Water will continue to participate with other GB water suppliers facilitated by WRAS in further refining and implementing the National Compliance Policy (Keeping Water Safe in Premises)
- NI Water will continue to promote at every appropriate opportunity the general awareness of the Regulations to customers through suitable public and professional interfaces
- Continue to participate in and benefit from the attendance at WRAS forums
- Continue to assist SNIPEF in the governance of the approved plumbing contractor's scheme as well promotional opportunities to raise plumbing standards in Northern Ireland
- Continuous improvement and refinement of the annual Water Regulation return and interim Regulatory reports
- Produce a business case for the NI Water Board to consider the need to upgrade or replace the current Water Fittings Regulation system used for inspection and reporting purposes

# Appendix 7

## 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>Coliforms</b>	A group of bacteria which 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><i>Cryptosporidium</i></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 which will give 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 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.
<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 which 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 34 in the regulations.
<b>Regulations</b>	The Water Supply (Water Quality) Regulations (Northern Ireland) 2007.

<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.
<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 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>WPD</b>	DRD Water 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">http://www.niwater.com</a>
<b>Wholesomeness</b>	A concept of water quality which is defined by reference to standards and other requirements set out in the Regulations.



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