



Drinking Water Quality  
**Annual Report 2014**





## Introduction and Foreword

I am pleased to present Northern Ireland Water's (NI Water) Annual Drinking Water Quality report covering the calendar year 2014. This is the eleventh 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 2014 to 31 December 2014 to meet the requirements of the Regulations under which we operate. During this reporting period, 99.84% of all tests carried out on samples taken from customer taps and authorised supply points, complied with the regulatory standards assessed using the Mean Zonal Compliance (MZC) method of assessment. Moving forward, NI Water will be 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.

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.

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.

Historically, NI Water has had 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 – details of this are contained in this report.

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

Although our funding programme for our PC15 price control period (2015-21) is at present 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. During January 2015 our water supplies to some customers were affected by industrial action. We continued to maintain a focus on ensuring good water quality during this period. The impact of the industrial action will be included in the 2015 Water Quality Report.

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 focussed 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.

**Sara Venning**  
Chief Executive Officer



# Contents Page

<b>Contents Page</b>	<b>3</b>	<b>Public Information</b>	<b>22</b>
<b>Drinking Water Quality</b>	<b>4</b>	Drinking Water Register	22
Water Quality Standards	4	Customer Services	22
Mean Zonal Compliance (MZC)	4	Self Service Portal	22
Drinking Water Quality Summary – Year on Year	5	NI Water Smartphone App to Report Leaks	23
<b>Protecting Our Customers</b>	<b>6</b>	Social Media	23
Drinking Water and Health	6	<b>Major Incident Information</b>	<b>24</b>
Lead Monitoring for Vulnerable Customers	6	Major Incident and Major Emergency Website	24
<b>Source to Tap</b>	<b>7</b>	<b>Appendix 1</b>	<b>25</b>
Drinking Water Safety Plans	7	Drinking Water Quality Standards	25
Managing our Drinking Water Catchments	7	Schedule 1	25
Sustainable Catchment Management Planning Northern Ireland (SCaMP NI)	8	Schedule 2	27
SCaMP NI Project Examples	9	<b>Appendix 2</b>	<b>28</b>
The Water Catchment Partnership	11	Water Quality Report for Water Supply Zones	28
Environmental Management System (EMS)	12	Water Quality Report for Authorised Supply Points	29
<b>Sufficiency of Supply</b>	<b>13</b>	Water Quality Report for Water Treatment Works	29
<b>Drinking Water Inspectorate - Technical Audit</b>	<b>14</b>	Water Quality Report for Service Reservoirs	29
Water Quality Events	14	2014 Mean Zonal Compliance	30
Example Events	14	<b>Appendix 3</b>	<b>31</b>
Regulatory Enforcement	15	Water Quality by Northern Ireland Local Council Area	31
<b>Quality Assurance</b>	<b>15</b>	<b>Appendix 4</b>	<b>44</b>
Use of Technology	15	Water Quality Events	44
<b>Water Quality Summary</b>	<b>16</b>	<b>Appendix 5</b>	<b>49</b>
Overall Water Quality	16	Water Supply (Water Fittings) Regulations (NI) 2009	49
Microbiological Quality	16	Compliance Policy	49
Physical and Chemical Quality at Customer tap	17	NI Water Customer Base	49
<b>Water Quality Issues</b>	<b>18</b>	Compliance Data	49
Summary	18	Notifications	50
Further information	19	Approved Contractors Scheme	50
<b>Investing for the Future</b>	<b>20</b>	Compliance Actions	50
Asset Management	20	General Information	51
Research, Development and Innovation	20	Reporting Year Recap	52
<b>Water Supply (Water Fittings) Regulations (NI) 2009</b>	<b>21</b>	<b>Appendix 6</b>	<b>53</b>
Water Regulation Background	21	Glossary of Technical Terms	53

# Drinking Water Quality

## Water Quality Standards

During 2014 Drinking Water Quality in Northern Ireland was assessed against standards set in the Water Supply (Water Quality) Regulations (Northern Ireland) 2007 as amended by the 2010 updated regulations. The regulations incorporate the requirements of the European Commission's Drinking Water Directive 98/83/EC (the "Directive") relating to the quality of water intended for human consumption and, for certain parameters, more stringent UK national standards.

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

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

NI Water assesses 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 customer tap. NI Water liaises with its customers on a wide variety of issues. Where there is an exceedence 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 6).

## Monitoring Drinking Water Quality

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

Under the Regulations, samples to be analysed for parameters 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 by one 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.

In prior reports, NI Water's compliance has been assessed using the measure of Mean Zonal Compliance. This solely looks at the average quality of water at customer tap or authorised supply point, but does not include parameters at water treatment works or service reservoirs. This measure is reported on for 2014 as a reporting requirement of the Utility Regulator (NI) as in previous years.

NI Water is changing its water quality reporting methodology from 2015 onwards to use overall percentage compliance. This assesses all regulatory consented parameters at water treatment

works, service reservoirs as well as customer tap. This is a more holistic approach and is supported by the Drinking Water Inspectorate and the Utility Regulator. A comparison of the 2 methods or assessment is in the table below.

## Drinking Water Quality Summary – Year on Year

Compliance assessed against the "Water Supply (Water Quality) Regulations (Northern Ireland) 2007"

Reporting Year	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
<b>Mean Zonal Compliance (average water quality at customer tap at parameter level)</b>	99.02%	99.34%	99.32%	99.50%	99.76%	99.82%	99.83%	99.80%	99.85%	99.84%
<b>Water Treatment Works Bacteriological Water Quality</b>	99.89%	99.90%	99.92%	99.95%	99.92%	99.99%	100.00%	99.98%	99.93%	99.98%
<b>Overall Quality at all NI Water Sites and Customer Taps</b>	99.49%	99.64%	99.60%	99.69%	99.80%	99.87%	99.84%	99.77%	99.81%	99.86%

## 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:

[www.niwater.com/drinking-water-guidance](http://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; this was continued through 2012, 2013 and completed in 2014.

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.



## 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.



### Managing our Drinking Water Catchments

#### Catchment Land

NI Water owns approximately 94km<sup>2</sup> 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 (WTW) 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.

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.





## Sustainable Catchment Management Planning Northern Ireland (SCaMP NI)

SCaMP NI 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.

### Solution Types

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.

### Approach

A Steering Group has been set up with representation from a wide range of environmental stakeholders. The aim of the group is to ensure that SCaMP NI 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 offers benefits under as many of the primary and secondary drivers as possible

Opportunities to work with other government departments, non-government organisations and environmental stakeholders to attain

solutions that provide shared goals and benefits and allow increased leverage of investments made through positive gearing.

In the past year there have been considerable successes in cross-border liaison with Irish Water and other stakeholders in the Republic of Ireland. Work is currently underway to obtain EU funding to deal with SCaMP issues on cross border catchments where co-operation is essential for success.

### Future Plans

It is our aim to carry out Catchment Management Studies in every drinking water catchment in Northern Ireland during the PC15 period. Eight studies have already been completed, working on a prioritised basis. The aim of this is 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.



**Tree felling at Lough Bradan, which can have a serious impact on water quality if not managed properly.**

Examples of potential outcomes from these studies are:

- Engagement and awareness for the agricultural community to improve practices when dealing with herbicides and pesticides to reduce contamination of raw water supplies
- Riparian tree planting along watercourses to stabilise river banks and prevent livestock encroachment to raw water supplies
- Bog restoration projects to reverse damage to habitats and provide natural sustainable filtration for raw water
- Forestry management improvements to reduce the detrimental effects on raw water of tree felling and replanting
- Trials and encouragement of best practice for land management to reduce the potential for raw water contamination

In addition the NI Water SCaMP NI team will:

- Continue the work of The Water Catchment Partnership to address pesticide problems across Northern Ireland
- To liaise with DARD to influence agricultural policy to minimise pesticide issue
- To liaise with Ulster University & Queen's University Belfast to explore opportunities for collaboration on research projects
- Further develop links with Irish Water for liaison on cross border catchment issues
- Further develop relationships with stakeholders to identify opportunities for improved catchment management
- Identify external funding opportunities where possible to further develop sustainable catchment management

## SCaMP NI Project Examples

### Wildfire Control in the Mournes

The Silent valley Catchment and surrounding area of the Mournes are subject to wildfires. In April/May 2011 a wildfire in the area damaged between 8-10km<sup>2</sup> of upland heath and again in 2004 another wildfire incident damaged an area of 0.8km<sup>2</sup>. 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 Mournes drinking water catchment and the wider Eastern Mournes 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 regarded across the UK as innovative and an example to follow. The implementation of all of the recommendations in the report will be a 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.



## Garron Plateau Blanket Bog Restoration

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

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.

Over the years there has been overgrazing by livestock on the plateau and the site was damaged during the 1960s and 1970s when drainage ditches were dug through the bog. Both of these activities gave rise to exposed peat which then became susceptible to erosion. This resulted in the reduced quality of raw water to Dungonnell Reservoir which made the raw water more expensive to treat and also damaged the natural hydrology of the bog.

In order to reverse the damage, a landscape scale approach was taken, ensuring that the whole catchment is managed sustainably. NI Water has worked with tenant farmers to reduce the grazing pressure, thus allowing the natural bog vegetation to recover. Also work has been done to restore the natural hydrological conditions

by blocking drains using peat, stone and sheet dams to raise the water table. This results 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 Water Catchment Partnership

The Water Catchment Partnership is a working partnership established from representatives from:

- NI Water
- Ulster Farmers' Union
- Northern Ireland Environment Agency
- DARD's College of Agriculture, Food and Rural Enterprise
- 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 aim is to proactively work 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.

Pesticides include herbicides, weedkillers, fungicides and insecticides. The initial focus is in the Derg catchment, due to the appearance of pesticides in the raw water, but if the project is successful the scheme will be rolled out to other priority drinking water catchments.

On occasion the incorrect use and disposal of pesticides has led to higher than normal levels of pesticides in raw water supplies. This increases the cost of treatment for NI Water in some catchments.

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 DARD's Code of Practice for Plant Protection Products.



Research shows that almost 50% of spills occur when filling or washing out a sprayer or container. Did you know that due to the very low tolerance for pesticide in drinking water, even a single drop of pesticide entering a watercourse can cause water quality problems up to 30km downstream?

The Water Catchment Partnership have been active:

- In attending farming education events and agricultural shows
- Press releases and information leaflets produced and distributed to householders
- Farm engagement visits and many other initiatives in problem catchments to raise awareness and provide best practice guidance on grassland pesticide use

### **Environmental Management System (EMS) ISO 14001**

NI Water's overarching Environmental Management System (EMS) has been certified to ISO 14001 and externally accredited since 2003. The EMS greatly assists NI Water in maintaining environmental compliance and continual improvements at its over 3,500 sites whilst providing high quality water and sewerage services to customers. The EMS was externally certified during 2014 by SGS (an independent globally recognised certifying organisation), and undergoes regular internal and external audits of NI Water's water and wastewater sites.

### **Mains Rehabilitation**

NI Water has identified the need to deliver a significant programme of water mains rehabilitation and other works across its ageing network. The works are necessary to ensure the efficient and cost effective operation of its water supply system in the immediate future and longer term. It is also to ensure adequate levels of water quality and customer supply.

In delivering these objectives, NI Water's main delivery mechanism is the Water Mains Rehabilitation Framework. This consists of two Contractors and has delivered over 1000km of new water mains in the past three years. The investment cycle just ending was Price Control 13 (PC13), which delivered 447km of new and renovated water main infrastructure over the last two years, and it is targeted to deliver 105km during 2015-16.

The rehabilitation framework delivers water mains across Northern Ireland as identified by the programme of work from the Watermain Infrastructure Investment Model (WIIM). This model is fed by NI Water internal Corporate Data, and is a new more customer based approach for water mains rehabilitation. The model recognises that most of the widespread water mains rehabilitation has been completed and is now moving to a more localised, targeted approach, producing a prioritised list of Water Network schemes for delivery by NI Water's Engineering Procurement directorate via the Watermains Rehabilitation framework.

The drivers for this programme of work are the maintenance of the systems, pressure management, reduction in interruption to supplies, better water quality, reduction in levels of leakage and allowance for growth in demand. NI Water considers a range of techniques for the installation of the rehabilitated mains. These include relining of the existing asset through online replacement by pipe insertion or pipe bursting, to off line replacement by directional drilling or open cut techniques.

Where possible, cost effective, trenchless technologies are used to replace or rehabilitate water mains to reduce the disruption caused by open-cut trench construction. Likely construction methods include pipe-bursting, slip-lining, directional drilling, spray lining and open cut. The most appropriate technology is selected for the various work packages and associated ground and traffic conditions.

## 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 563 million litres of high quality drinking water to customers every day during 2014. 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.

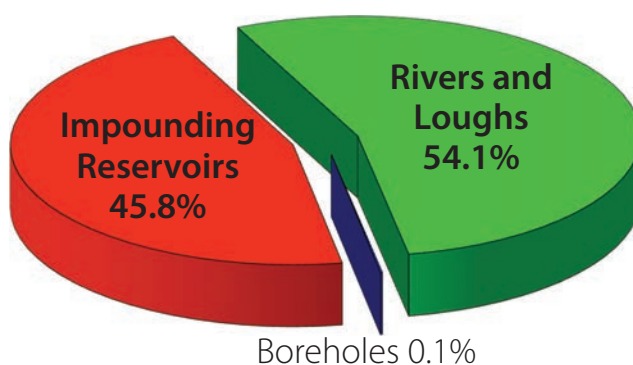
Following completion of the WRMP the Department for Regional Development (DRD), Northern Ireland Authority for Utility Regulation (NIAUR) and NI Water agreed to combine the WRMP and Drought Planning process into a single document, and then produce one plan on a rolling 6 yearly programme. Changes to the Water and Sewerage Services (Northern Ireland) Order 2006 are to be made in 2015/16 to codify this.

The new 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 will commence work on development of the WR & SR Plan 2017 in 2015.

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 2014, the technical audit inspection programme included:

- An audit of Belleek Water Treatment Works
- An audit of the Laboratory Information Management System (LIMS)
- Accompanying UKAS on an audit of Westland House Laboratory
- 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 2014 is detailed in Appendix 4.

## Example Events

### 1. Drumaroad WTW temporary loss of disinfection 24th November 2014 – Serious Event

There was a loss of disinfection at Drumaroad WTW for a short time period on the 24 November 2014. The loss of disinfection was attributed to insufficient sodium hypochlorite within the duty tank to maintain dosing and there was no facility in place to enable an automatic switchover from the duty to the stand-by tanks, which is integral to enable continuity of chlorination of the water supply.

When staff arrived on site, sodium hypochlorite dosing was quickly restored by switchover to the standby tank. The final water free chlorine was increased for a few hours as a precautionary measure. As there are no properties supplied directly from Drumaroad WTW the dilution effect of the chlorinated water already in the downstream SRs meant that there was chlorine residual maintained at these tanks and further down the distribution system. The system was closely monitored by NI Water's networks staff, however chlorine levels within the distribution system remained satisfactory and therefore additional chlorine boosting within the distribution was not required.

Samples were taken throughout the whole distribution supply area as part of NI Water's normal procedures in place to monitor water quality in relation to water quality events. There were no water quality failures attributed to this event and the chlorine

residual remained good though the whole distribution system.

The Drinking Water Inspectorate (DWI) issued Regulatory Enforcement in relation to this event for a breach of regulation 26(1)(a) - to ensure that water supplied is adequately disinfected. The Provision Enforcement Order (PEO) required NI Water to undertake remedial measures to mitigate against the potential for future contraventions of regulation 26 (1)(a) within the water supplied from Drumaroad WTW.

NI Water completed the agreed remedial measures at Drumaroad WTW to enable the closure of the PEO by the DWI.

### 2. Oil pollution risk at Lough Ross which supplies Carran Hill WTW 24th February 2014 – Minor Event

The NI Water laboratory at Westland House reported to the Water Quality Scientist that the raw water sample taken at Carran Hill WTW (Lough Ross supply) on the morning of 24th February 2014 smelled strongly of oil. Analytical Staff at Westland laboratory analysed the sample and confirmed the sample failed the odour test with an analytical result of 5 Dilution number an odour description of "diesel".

Following the prompt report of the smell in the raw water sample by the Analytical staff at the laboratory an inspection of the Lough was undertaken by NI Water staff, but no evidence of oil at the intake to Carran Hill WTW was found during the inspection. Carran Hill WTW has an "oil in water" monitor at the intake to the works, which will automatically shut down the intake if oil in the intake supply is detected to prevent it entering the treatment works.

NI Water staff informed NIEA Emergency pollution team of the oil spill at Lough Ross and an inspector was sent immediately to site to investigate. A minor oil spill was confirmed in a feeder stream to Lough Ross. NIEA installed booms to contain the spill and following investigation the source of the oil spill was identified. NIEA carried out the required clean ups.

The prompt action by the laboratory staff to report the smell of diesel in the raw water supply from Lough Ross enabled NI Water to carry out inspections at the intake to the works and to ensure that required monitoring and preventive actions were in place. There were no water quality exceedances from Carran Hill WTW and distribution system in relation to this event.

The prompt reporting by NI Water to the NIEA Emergency Pollution team also ensured that the source of the pollution was quickly identified and stopped and the required clean up was carried out.

## Regulatory Enforcement

DWI put in place two "Consideration of Provisional Enforcement Orders" (CPEOs), one "Provisional Enforcement Order" (PEO) and one Regulation 28 notice during 2014:

- 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
- CPEO 14/02 - to seek remedial measures relating to manganese contraventions in the water supplied from Camlough WTW
- PEO 14/01 - to require remedial measures to be put in place relating to a failure to disinfect water leaving Drumaroad WTW

- Regulation 28 Notice – requiring NI Water to put appropriate measures in place to ensure adequate disinfection is maintained at Rathlin WTW

Two CPEOs issued during 2013 were closed during 2014:

- CPEO 13/03 – Clay Lake WTW and associated supply area to seek remedial measures following contraventions of the MCPA (Pesticide) standard. Closed 29/04/2014 following completion of undertakings
- CPEO 13/04 – Dunore WTW and associated supply area to seek remedial measures following contravention of microbiological parameters. Closed 14/11/2014 following completion of undertakings

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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 is also fully accredited and is instrumental in the development of new accredited methods for the water industry.

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 ruggedised 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.

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



# Water Quality Summary

## NI Water Sites in Service

During 2014, the numbers of NI Water sites in service were:

Location Type	Number in Service
Water Treatment Works	25
Service Reservoirs	302
Water Supply Zones	50
Authorised Supply Points (see glossary)	25

## Overall Water Quality Testing

102,036 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 2014. 101,889 of these tests complied with the regulatory standards giving an overall percentage compliance of 99.86%. Under the Regulations a subset of these parameters is used to assess Mean Zonal Compliance at the customer tap (as set out in Appendix 2).

Location Type	No of Samples	Regulatory Parameters Analysed	Regulatory Parameters used for Compliance Assessment
Raw Water Source	150	4,492	0
Water Treatment Works	6,460	45,445	19,605
Service Reservoir	15,640	93,840	31,280
Zone (Customer Tap)	5,220	51,531	51,151
Overall	27,470	195,308	102,036

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.

## Microbiological Quality

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

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

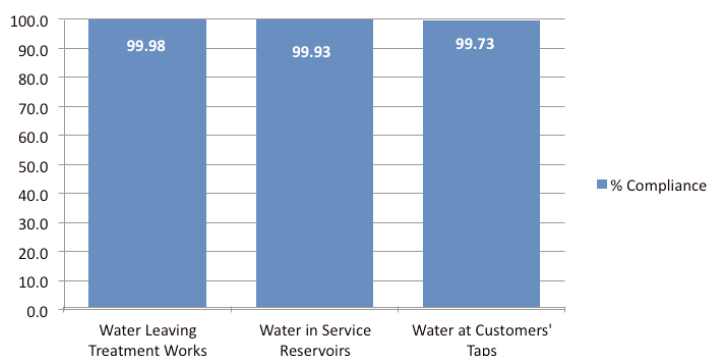
drinking water, immediate action is taken to identify the source and to minimise any risk to public health.

Many instances of microbiological failure in samples taken from customer taps are due to contamination of the tap itself, in particular with mixer type kitchen taps. For this reason if a positive result is obtained, investigations are immediately carried out to identify if the positive result is due to the specific tap or the general system.

If the contamination is found to be due to the tap or internal plumbing NI Water will inform the customer in writing of the reason for the failure so that they can take appropriate action. A copy of the letter is also provided to the Public Health Agency, the local Environmental Health Officer and the DWI.

A summary of the microbiological quality of water supplied in 2014 is given below.

## Overall Microbiological Water Quality



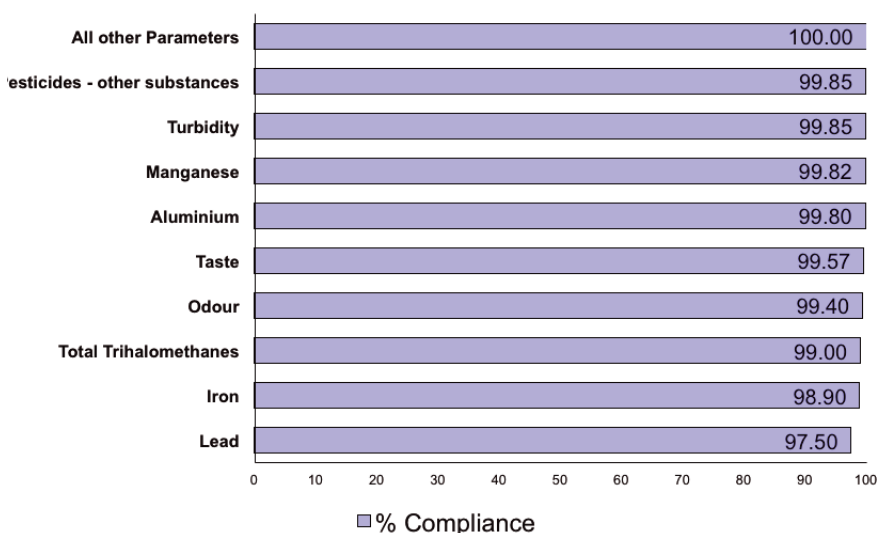
## Physical and Chemical Quality at Customer tap

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.

- 38,058 physical and chemical tests were assessed against their consent for water samples taken at customer taps or authorised supply points in the year 2014. 37,980 of these tests complied with the regulatory standards giving a compliance of 99.80% 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. Appendix 2 also shows the Mean Zonal Compliance achieved by NI Water for 2014.

## Mean Zonal 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	12,920	2	99.98
Indicator parameters	6,685	11	99.84
<b>Total</b>	<b>19,605</b>	<b>13</b>	<b>99.93</b>
<b>Water in Service Reservoirs</b>			
Bacteriological Analysis	31,280	21	99.93
<b>Total</b>	<b>31,280</b>	<b>21</b>	<b>99.93</b>
<b>Water at Customer Taps or Authorised Supply Points</b>			
Bacteriological Anal inc Coliforms	13,093	35	99.73
Zone Chemical Analysis	21,891	68	99.69
Supply Point Chemical Analysis	9,280	10	99.89
Indicator parameters	6,887	0	100
<b>Total</b>	<b>51,151</b>	<b>113</b>	<b>99.78</b>
<b>Total Mandatory Parameters</b>	<b>88,464</b>	<b>136</b>	<b>99.85</b>
<b>Total Indicator Parameters</b>	<b>13,572</b>	<b>11</b>	<b>99.92</b>
<b>Overall Water Quality Total</b>	<b>102,036</b>	<b>147</b>	<b>99.86</b>

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

## Water Quality Issues

During 2014 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 watermains. 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 exceedence 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.

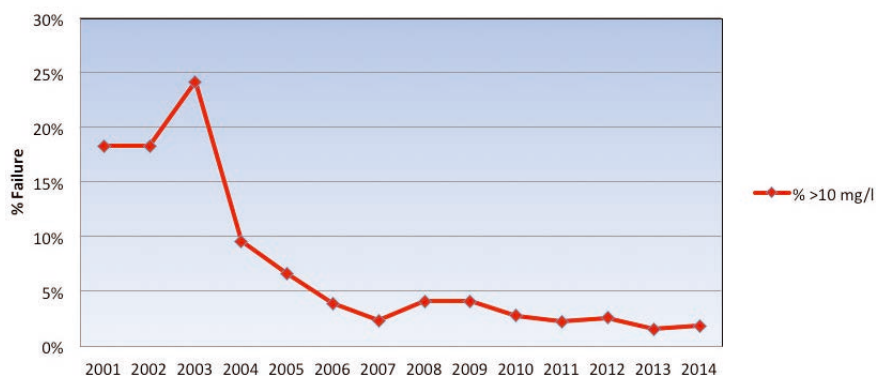
NI Water will also replace free of charge, any of its lead pipes supplying a property, if it receives a written request from a customer who has replaced the portion of lead service pipe for which the householder is responsible.

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 the DWI informed of any changes in dosing.

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 Exceedences against the new 10µg/l Standard**

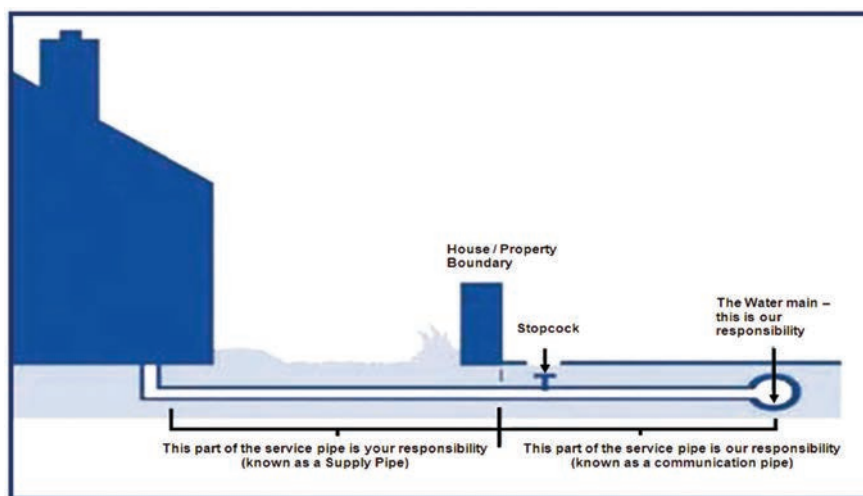


A leaflet on lead in drinking water is available from the NI Water website at [www.niwater.com/about-your-water](http://www.niwater.com/about-your-water)

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 algaecides. These can find their way into watercourses from a variety of sources, mainly from use in agriculture or weed control. NI Water has an ongoing pesticide monitoring programme and analysed samples for 38 individual pesticides during 2014. 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 exceedences were for one of the more commonly used pesticides – MCPA, and also for Clopyralid.

NI Water is engaged on an ongoing series of catchment management plans as part of its overall Drinking Water Safety Plans 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 exceedences 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). The guidance set a Mean Zonal Compliance target of not less than 99.7% 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 for the laying 905km of new or renewed watermains, the provision of 3 strategic trunk mains, 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 have had to be reduced. This has had an impact on the investment available for water maintenance and enhancement projects. The capital programme for 2015-16 has been reduced by £15m which has reduced the length of water mains to be renovated from a target of 130km to 105km. The availability of publically funded capital will dictate the level of investment going forward and the number of water schemes which will be completed.

These planned investments would aim to maintain and locally improve 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 3.

## 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 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). 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 enforce the requirements of the Regulations and DRD Water Policy and Shareholder Division (WPSD) is deemed to be the Regulator of this activity: NI Water and WPSD meet quarterly to discuss issues arising under the Regulations, enforcement 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 5 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	571
• Revisit Inspection	743
• Drawings Inspection	6
<b>Total number of all Inspections</b>	<b>1320</b>
*Number of Premises/Bodies visited	1320
*Number of Contraventions Active recorded	1775
*Number of Contraventions Closed	725
*Number of Outstanding Contraventions	1050

\*Calendar year 2014

# Public Information

## Drinking Water Register

A Drinking Water Register is available from NI Water's website at:

<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**

Customers may also contact Customer Services by email on: **waterline@niwater.com** or via Twitter: **@niwnews**

Further information for customers may be obtained at the following website: **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)**

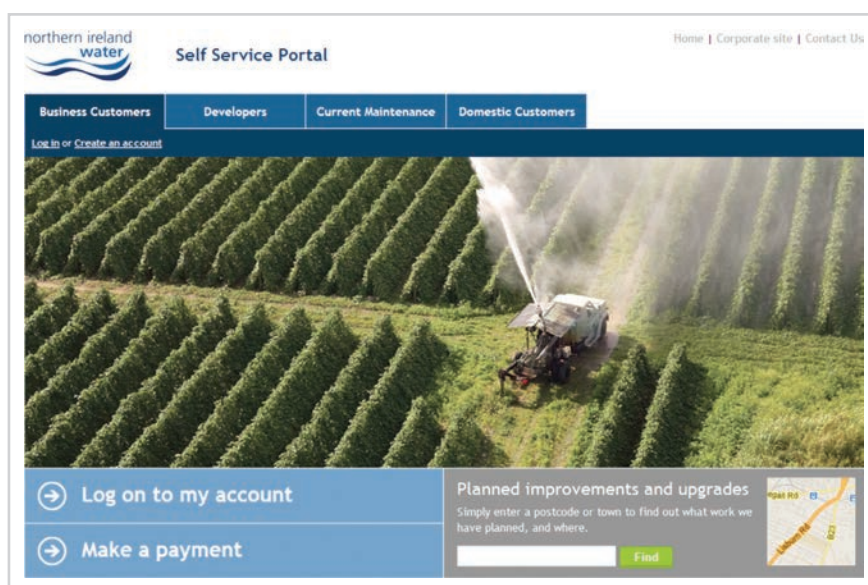
## Self Service Portal

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
- by the end of 2015 participate in a live WebChat with a Customer Service advisor

This web portal can be found at: **<https://selfservice.niwater.com>**



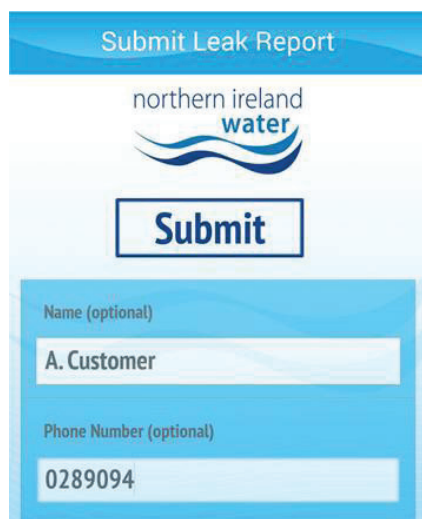
## NI Water Smartphone App to Report Leaks

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, it says 'Submit Leak Report' in a blue header. Below that is the 'northern ireland water' logo. A large blue 'Submit' button is centered. Below 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.



## Major Incident Information

In a major incident or emergency situation (such as the sudden flooding following heavy rainfall in June 2012) NI Water can experience a massive increase in demand for information by our customers which would overwhelm the normal systems in place.

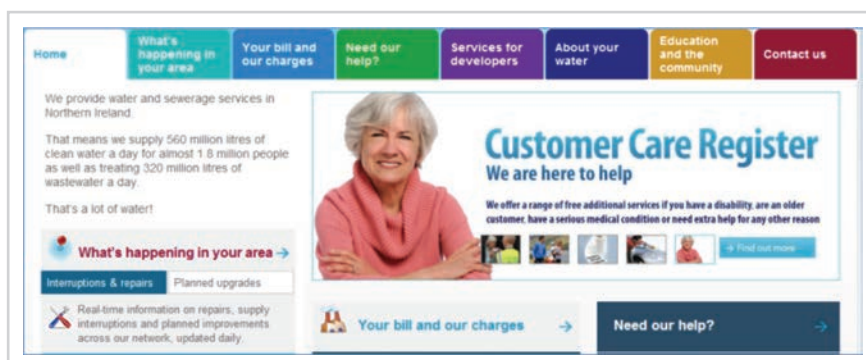
To increase the number of calls answered and the quality of information provided, NI Water has installed a High Volume Call Answering (HVCA) system. This is an “always on” service which monitors all incoming calls to WaterLine and takes on the additional load during unexpected peaks. The NI Water HVCA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

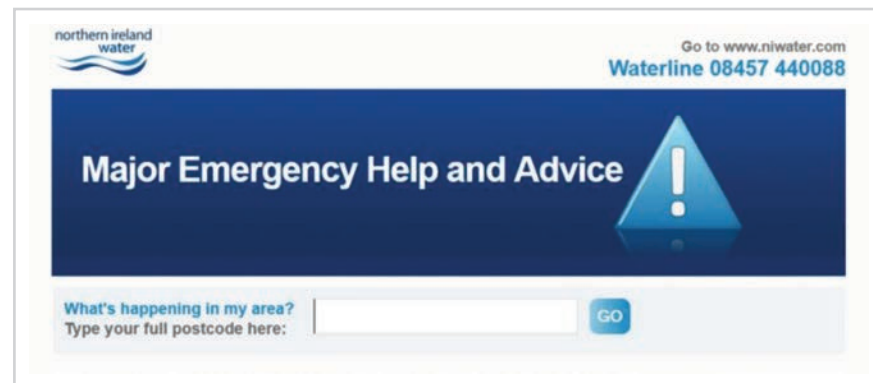
NI Water’s management of the incident will be improved because we will know when, and why, each customer has called. This allows a more detailed picture of the reasons customers are calling and the potential causes to be built up. This technology puts NI Water on a par with other utilities in Northern Ireland and other water companies in Great Britain.

## 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 has been enhanced and allows in excess of 200,000 visits /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	(ii)
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

Parameters	Concentration or Value (maximum unless otherwise stated)	Units of Measurement	Point of compliance
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

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

**Notes:**

- (i) The water should not be aggressive.
- (ii) Excluding tritium, potassium-40, radon and radon decay products.

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

**Explanatory Notes**

**Measurement Units:**

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	2014 Samples	No > PCV	% > PCV
Enterococci	392	0	0.00%
E. coli	5220	1	0.02%
1,2 Dichloroethane	391	0	0.00%
Aluminium	1896	4	0.21%
Antimony	392	0	0.00%
Arsenic	392	0	0.00%
Benzene	391	0	0.00%
Benzo(a)pyrene	392	0	0.00%
Boron	392	0	0.00%
Bromate	392	0	0.00%
Cadmium	392	0	0.00%
Chromium	392	0	0.00%
Colour	1896	0	0.00%
Copper	392	0	0.00%
Fluoride	392	0	0.00%
Iron	1896	20	1.05%
Lead	392	10	2.55%
Manganese	1896	3	0.16%
Mercury	392	0	0.00%
Nickel	392	0	0.00%
Nitrate	392	0	0.00%
Nitrite	392	0	0.00%
Odour	1896	14	0.74%
Selenium	392	0	0.00%
Sodium	392	0	0.00%
Taste	1896	10	0.53%
PAH - Sum of four substances	392	0	0.00%
Tetrachloroethene/Trichloroethene - Sum	391	0	0.00%
Tetrachloromethane	391	0	0.00%
Total Trihalomethanes	391	4	1.02%
Turbidity	1896	3	0.16%

Indicator parameters	2014 Samples	No > SPEC	% > SPEC
Total coliforms	5220	28	0.54%
Total - Residual disinfectant	5220	-	-
Free - Residual disinfectant	5220	-	-
Colony Counts 37 (48hrs)	1896	-	-
Colony Counts 22	1896	-	-
Ammonium	1896	0	0.00%
Hydrogen Ion	392	0	0.00%

## Water Quality Report for Authorised Supply Points

Schedule 1 parameters	2014 Samples	No > PCV	% > PCV
Cyanide	232	0	0.00%
Aldrin	232	0	0.00%
Dieldrin	232	0	0.00%
Heptachlor	232	0	0.00%
Heptachlor Epoxide	232	0	0.00%
Pesticides - Total Substances	232	0	0.00%
All other analysed Pesticides	7888	10	0.13%

Indicator parameters	2014 Samples	No > SPEC	% > SPEC
Clostridium perfringens (sulph red)	2261	6	0.27%
Conductivity	2261	0	0.00%
Total Organic Carbon	232	-	-
Total Indicative Dose	25	0	0.00%
Tritium	25	0	0.00%

## Water Quality Report for Water Treatment Works

Schedule 1 parameters	2014 Samples	No > PCV	% > PCV
Total Coliforms	6460	2	0.03%
E. coli	6460	0	0.00%
Nitrite	225	0	0.00%

Indicator parameters	2014 Samples	No > SPEC	% > SPEC
Turbidity	6460	11	0.17%
Total - Residual disinfectant	6460	-	-
Free - Residual disinfectant	6460	-	-
Colony Counts 37 (48hrs)	6460	-	-
Colony Counts 22	6460	-	-

## Water Quality Report for Service Reservoirs

Schedule 1 parameters	2014 Samples	No > PCV	% > PCV
Total Coliforms	15640	17	0.11%
E. coli	15640	4	0.03%

Indicator parameters	2014 Samples	No > SPEC	% > SPEC
Colony Counts 37 (48hrs)	15640	-	-
Colony Counts 22	15640	-	-
Total - Residual disinfectant	15640	-	-
Free - Residual disinfectant	15640	-	-

## 2014 Mean Zonal Compliance

Parameter	Number of Samples	No of fails at zone / supply point	No of zones / supply points with fails	% Zonal Compliance
Colour	1896	0	0	100.00
Turbidity	1896	3	3	99.85
Odour	1896	14	6	99.40
Taste	1896	10	5	99.57
Sodium	392	0	0	100.00
Nitrate	392	0	0	100.00
Nitrite	392	0	0	100.00
Nitrite/Nitrate Formula	392	0	0	100.00
Aluminium	1896	4	4	99.80
Iron	1896	20	17	98.90
Manganese	1896	3	3	99.82
Copper	392	0	0	100.00
Fluoride	392	0	0	100.00
Arsenic	392	0	0	100.00
Cadmium	392	0	0	100.00
Cyanide	232	0	0	100.00
Chromium	392	0	0	100.00
Mercury	392	0	0	100.00
Nickel	392	0	0	100.00
Lead	392	10	7	97.50
Antimony	392	0	0	100.00
Selenium	392	0	0	100.00
Total Pesticides	232	0	0	100.00
PAH - Sum of four substances	392	0	0	100.00
E.coli	5220	1	1	99.99
Enterococci	392	0	0	100.00
Boron	392	0	0	100.00
Benzo(a)pyrene	392	0	0	100.00
Tetrachloromethane	391	0	0	100.00
Tetrachloroethene/Trichloroethene - Sum	391	0	0	100.00
Total Trihalomethanes	391	4	3	99.00
1,2 dichloroethane	391	0	0	100.00
Benzene	391	0	0	100.00
Bromate	392	0	0	100.00
Aldrin	232	0	0	100.00
Dieldrin	232	0	0	100.00
Heptachlor	232	0	0	100.00
Heptachlor Epoxide	232	0	0	100.00
Pesticides - other substances	7888	10	6	99.85
<b>Total Number of Samples / Fails</b>	<b>37175</b>	<b>79</b>		
<b>Mean Zonal Compliance %</b>				<b>99.84</b>

(Taste & Odour have been removed from the Mean Zonal Compliance assessment as data validation for these parameters is still ongoing. All the required regulatory samples were scheduled and collected for analysis.)

## Appendix 3

### 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 Mean Zonal Compliance (MZC) 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 MZC 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 MZC. 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 has appointed two contractors to undertake work on a Northern Ireland wide basis as identified by the zonal study programme of work.

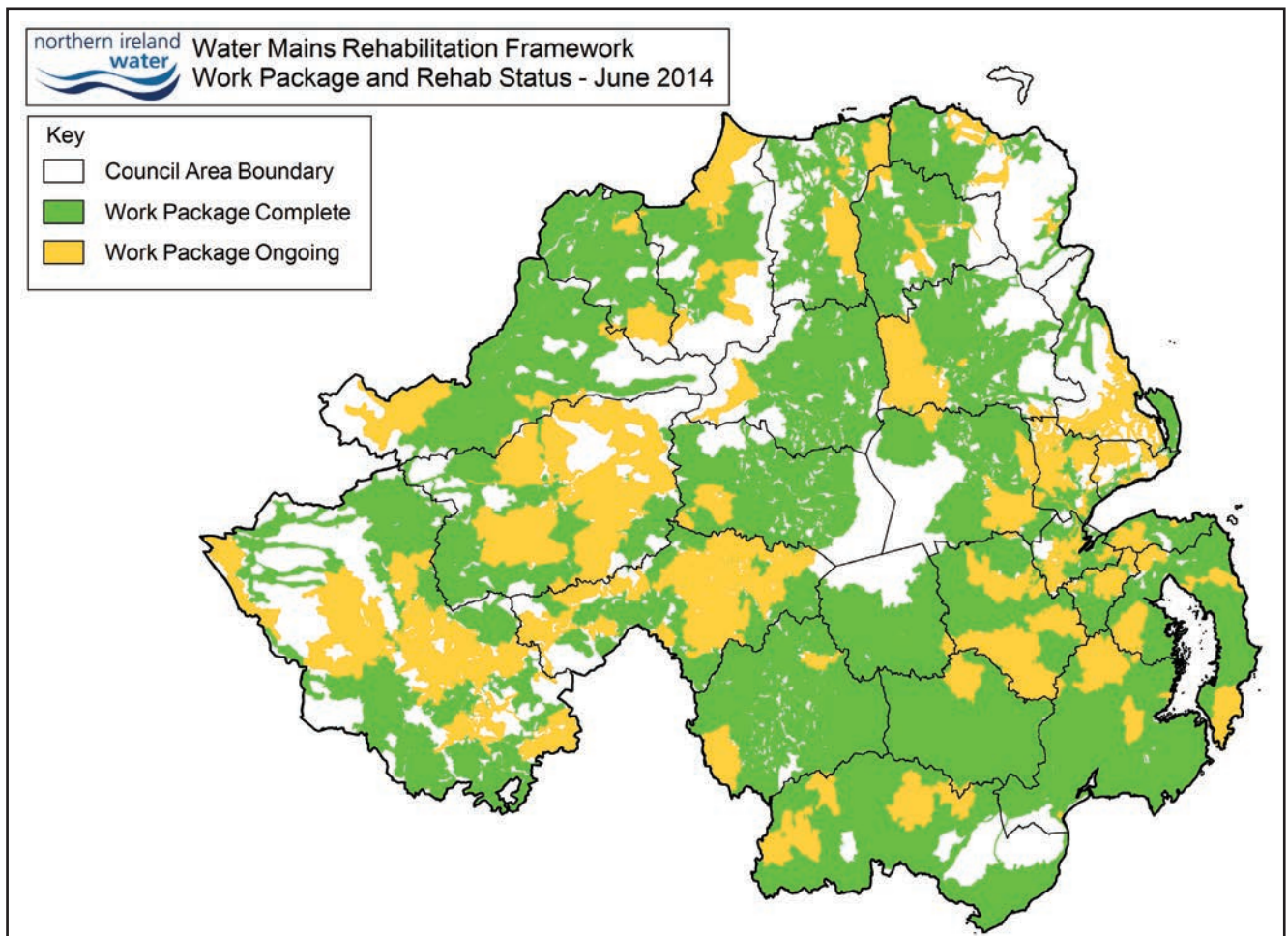
Overall, the quality of water supplied to our customers over the last period has improved rising from a Mean Zonal Compliance of 99.50% in 2008 to 99.84% in 2014. This compares with the Social and Environmental Guidance target of 99.70%.



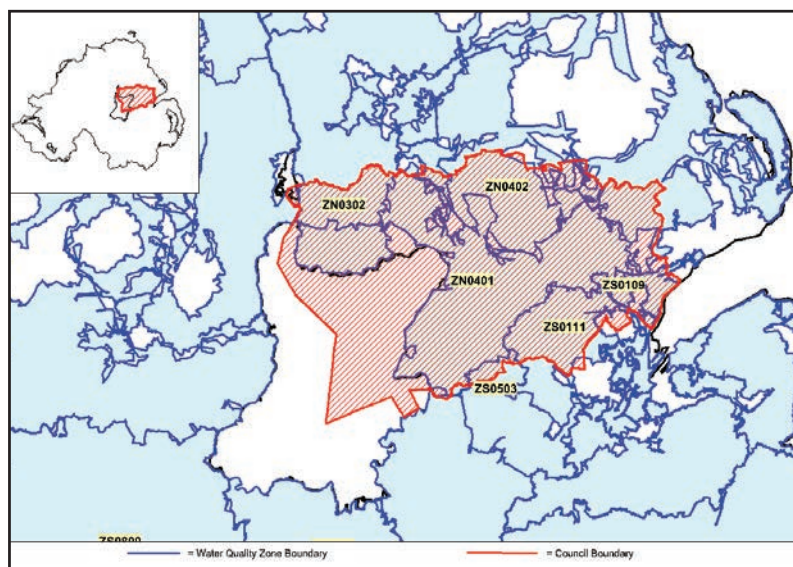
# Watermains Rehabilitation Framework

## 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



## Mean Zonal Compliance (MZC)

	Target	2012	2013	2014
Overall Northern Ireland MZC	99.7%	99.8%	99.9%	99.8%
Antrim and Newtownabbey MZC	99.7%	99.9%	99.8%	99.8%

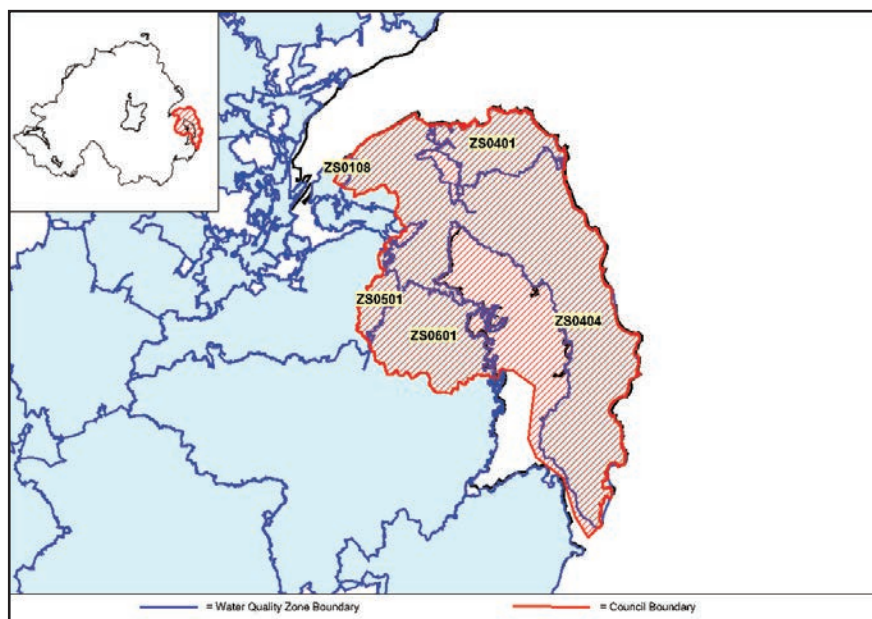
## 2014 water supply zones wholly or partially within the council area:

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

## 2014 water quality Capital Works Programmes affecting the council area:

Ballyclare Road Glengormley Watermain Upgrade	Niblock Road, Antrim, Watermain Extension
Ballywonard Zone Watermain Improvements	Non-Infrastructure Major Works
Dunore West Zone Watermain Improvements	PC15 Watermain Rehabilitation WP 6: Dungonnell
Gravity II, McVeigh's well to Old Park SR	SEMD Surveys PC10 Water
High Priority Watermain Phase 2 Work Package	Service Reservoir Assessments - Site Access
Killylane Dunore East Phase 1	Service Reservoir Enhanced Security
Lurgan Road, Glenavy, Watermain Extension	Service Reservoir Security Phase 1
McVeigh's Well Rationalisation of Pipework	Tardree Zone WM Imps
MIMP Central (Major Incident Mitigation Project Central Region)	Water Resource and Supply Resilience Plan
Freeze Thaw Improvements	Watermain Rehabilitation, New and Replacement including FTS
MIMP East (Major Incident Mitigation Project East Region)	- Professional Services
Freeze Thaw Improvements	WTW Effluent Quality
Newtownabbey Zone Watermain Improvements Phase 1	WTW Resilience Programme
Newtownabbey Zone Watermain Improvements Phase 2	
Newtownabbey Zone Watermain Improvements Phase 3	

## Ards and North Down Borough Council



### Mean Zonal Compliance (MZC)

	Target	2012	2013	2014
Overall Northern Ireland MZC	99.7%	99.8%	99.9%	99.8%
Ards and North Down MZC	99.7%	99.9%	99.9%	99.8%

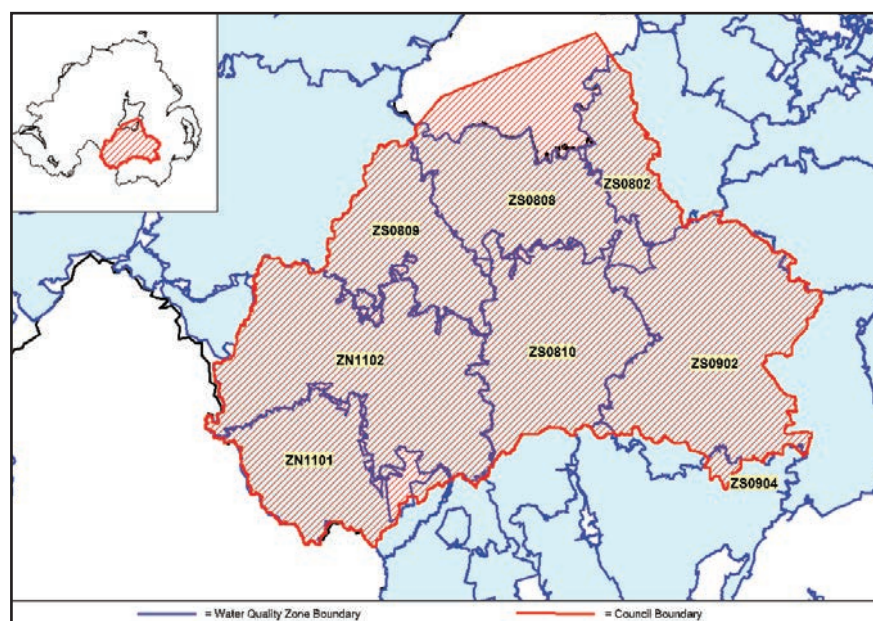
### 2014 water supply zones wholly or partially within the council area:

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

### 2014 water quality Capital Works Programmes affecting the council area:

Ardview Road Killinchy Watermain Replacement  
 Drumarden Road Portaferry  
 High Priority Watermain Phase 2 Work Package  
 MIMP East (Major Incident Mitigation Project East Region) Freeze Thaw Improvements  
 Non-Infrastructure Major Works  
 Replacement Watermain 2014/15 - Reactive, Bundle 2  
 SEMD Surveys PC10 Water  
 Service Reservoir Assessments - Site Access  
 Service Reservoir Enhanced Security  
 Service Reservoir Security Phase 1  
 Water Resource and Supply Resilience Plan  
 Watermain Rehabilitation, New and Replacement including FTS - Professional Services  
 WTW Effluent Quality  
 WTW Resilience Programme

# Armagh City, Banbridge and Craigavon Borough Council



## Mean Zonal Compliance (MZC)

	Target	2012	2013	2014
Overall Northern Ireland MZC	99.7%	99.8%	99.9%	99.8%
Armagh, Banbridge & Craigavon MZC	99.7%	99.9%	99.9%	99.9%

## 2014 water supply zones wholly or partially within the council area:

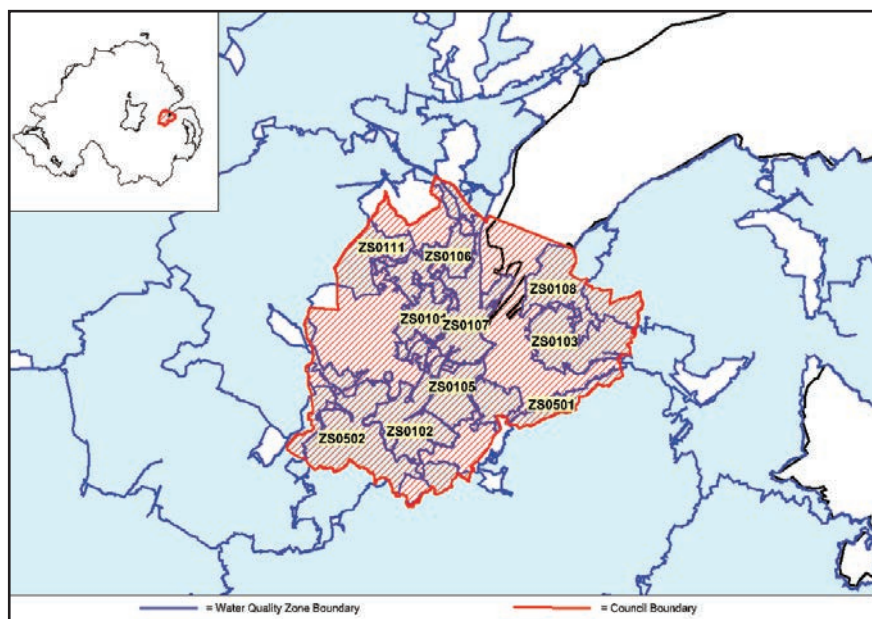
Zone Code	Zone Name	Zone Code	Zone Name
ZN1101	Clay Lake Keady	ZS0809	Castor Bay Dungannon
ZN1102	Seagahan Armagh	ZS0810	Castor Bay Tandragee
ZS0802	Castor Bay Lurgan	ZS0902	Fofanny Dromore
ZS0808	Castor Bay Craigavon	ZS0904	Fofanny Mourne

## 2014 water quality Capital Works Programmes affecting the council area:

Ballydugan to Newry Main Link Reinforcement  
 Carrive Road Quilly Road Mullaghbawn Watermain Replacement  
 Castor Bay to Dungannon Strategic Trunk Mains  
 Cranny Lane, Portadown Watermain Ext  
 Fofanny Banbridge Zone Watermain Improvements Phase 2  
 High Priority Watermain Phase 2 Work Package  
 Legahory Craigavon, Replacement Watermain  
 MIMP South (Major Incident Mitigation Project South Region)  
 Freeze Thaw Improvements  
 Non-Infrastructure Major Works  
 PC15 Watermain Rehabilitation WP 1: Fofanny / North Lisburn South  
 SEMD Surveys PC10 Water

Service Reservoir Assessments - Site Access  
 Service Reservoir Enhanced Security  
 Service Reservoir Security Phase 1  
 SR By-pass Schemes  
 Tardree Zone WM Imps  
 Water Resource and Supply Resilience Plan  
 Watermain Rehabilitation, New and Replacement including  
 FTS - Professional Services  
 WP134 High Priority Watermain Ph1  
 WTW Effluent Quality  
 WTW Resilience Programme

# Belfast City Council



## Mean Zonal Compliance (MZC)

	Target	2012	2013	2014
Overall Northern Ireland MZC	99.7%	99.8%	99.9%	99.8%
Belfast MZC	99.7%	99.9%	99.9%	99.8%

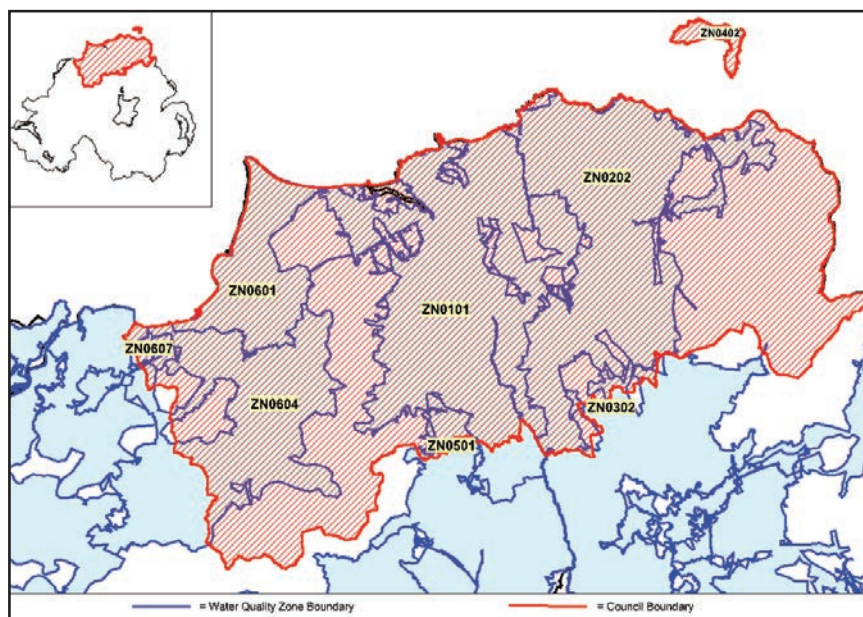
## 2014 water supply zones wholly or partially within the council area:

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

## 2014 water quality Capital Works Programmes affecting the council area:

Ballygomartin North Phase 1 Watermain Improvements	Oldpark Watermain Improvements
Ballygomartin South Phase 1 Watermain Improvements	SEMD Surveys PC10 Water
Ballywonard Zone Watermain Improvements	Service Reservoir Assessments - Site Access
CTM Extension – Barnett’s Park to Purdysburn	Service Reservoir Enhanced Security
Gravity II, McVeigh’s well to Old Park SR	Service Reservoir Security Phase 1
High Priority Watermain Phase 2 Work Package	Water Resource and Supply Resilience Plan
Lead Pipe Replacement Programme	Watermain Rehabilitation, New and Replacement including FTS -
McVeigh’s Well Rationalisation of Pipework	Professional Services
MIMP East (Major Incident Mitigation Project East Region)	Whiterock Phase 1 Watermain Improvements
Freeze Thaw Improvements	WTW Effluent Quality
Non-Infrastructure Major Works	WTW Resilience Programme

# Causeway Coast and Glens Borough Council



## Mean Zonal Compliance (MZC)

	Target	2012	2013	2014
Overall Northern Ireland MZC	99.7%	99.8%	99.9%	99.8%
Ballymoney Council MZC	99.7%	99.9%	99.8%	99.8%

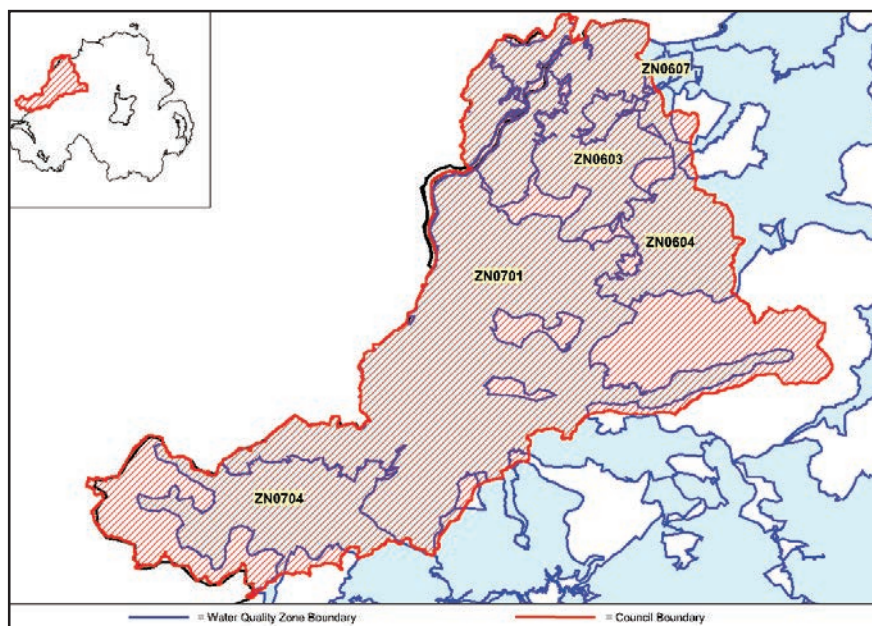
## 2014 water supply zones wholly or partially within the council area:

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		

## 2014 water quality Capital Works Programmes affecting the council area:

Ballinrees to Limavady/Londonderry Supply Augmentation	SEMD Surveys PC10 Water
Brishey Springs Decommissioning, Dungiven	Service Reservoir Assessments - Site Access
Caugh Hill WTW FAS Storage	Service Reservoir Enhanced Security
Chatham Road, Armoy, Watermain Replacement	Service Reservoir Security Phase 1
Green Road, Coleraine WM Ext	SR By-pass Schemes
High Priority Watermain Phase 2 Work Package	Water Resource and Supply Resilience Plan
Kilraughts Road Ballymoney Water Main Replacement	Watermain Rehabilitation, New and Replacement including FTS -
MIMP North (Major Incident Mitigation Project North Region)	Professional Services
Freeze Thaw Improvements	WP134 High Priority Watermain Ph1
Moyola Zone Watermain Improvements	WTW - Treatability Appraisal of Caugh Hill WTW
Non-Infrastructure Major Works	WTW Effluent Quality
Rathlin Island Borehole Feasibility Study	WTW Resilience Programme
Replacement Watermain 2014/15 - Reactive, Bundle 1	WTWs Five Treatability Appraisal Studies

# Derry City and Strabane District Council



## Mean Zonal Compliance (MZC)

	Target	2012	2013	2014
Overall Northern Ireland MZC	99.7%	99.8%	99.9%	99.8%
Derry City & Strabane MZC	99.7%	99.6%	99.9%	99.7%

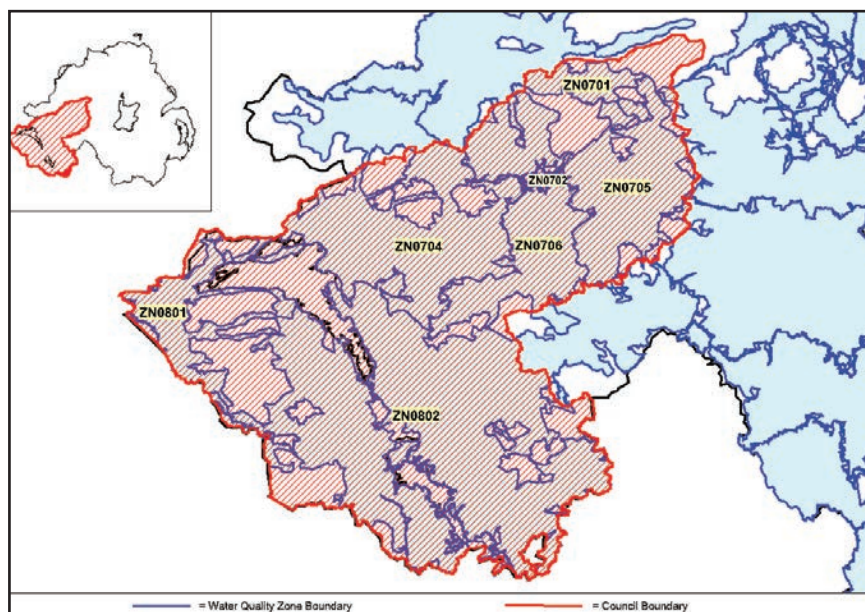
## 2014 water supply zones wholly or partially within the council area:

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		

## 2014 water quality Capital Works Programmes affecting the council area:

Alleyhill Zone Watermain Improvements	SEMD Surveys PC10 Water
Ballinrees to Limavady/Londonderry Supply Augmentation	Service Reservoir Assessments - Site Access
Carmony to Strabane Strategic Link Watermain	Service Reservoir Enhanced Security
Castletown/Koram WPS Upgrade	Service Reservoir Security Phase 1
Enhanced Site Security	Sustainable Catchment Area Management Project (SCaMP NI)
High Priority Watermain Phase 2 Work Package	Water Resource and Supply Resilience Plan
Londonderry DAP: Duke Street Work package	Watermain Rehabilitation, New and Replacement including FTS -
MIMP North (Major Incident Mitigation Project North Region)	Professional Services
Freeze Thaw Improvements	WP134 High Priority Watermain Ph1
MIMP West (Major Incident Mitigation Project West Region)	WTW Effluent Quality
Freeze Thaw Improvements	WTW Resilience Programme
Non-Infrastructure Major Works	WTWs Five Treatability Appraisal Studies
Omagh Phase 2 Watermain Rehab	

# Fermanagh and Omagh District Council



## Mean Zonal Compliance (MZC)

	Target	2012	2013	2014
Overall Northern Ireland MZC	99.7%	99.8%	99.9%	99.8%
Fermanagh & Omagh Council MZC	99.7%	99.7%	99.9%	99.8%

## 2014 water supply zones wholly or partially within the council area:

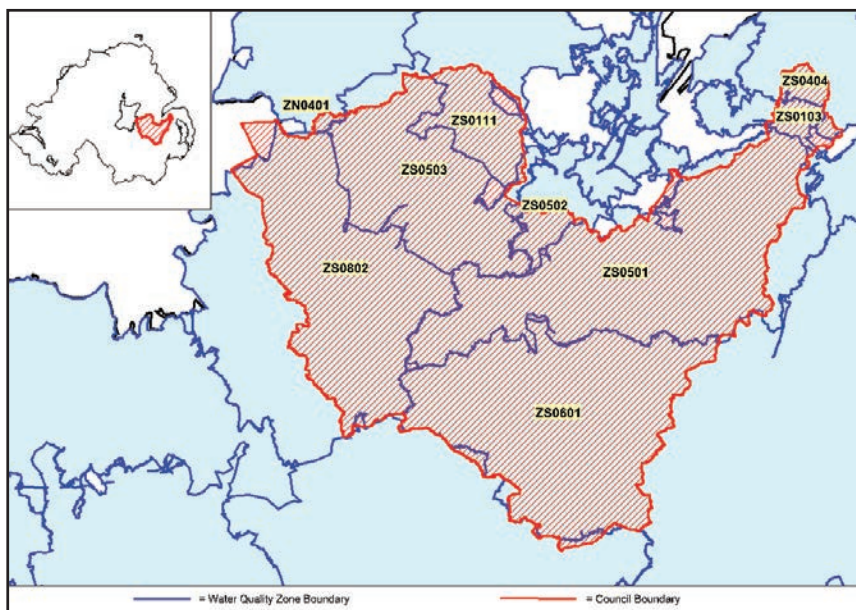
Zone Code	Zone Name	Zone Code	Zone Name
ZN0701	Derg Strabane	ZN0706	Lough Macrory Killyclogher
ZN0702	Glenhordial Omagh	ZN0801	Belleek Garrison
ZN0704	Lough Bradan Drumquin	ZN0802	Killyhevlin Enniskillen
ZN0705	Lough Macrory Beragh		

## 2014 water quality Capital Works Programmes affecting the council area:

Alleyhill Zone Watermain Improvements	Service Reservoir Enhanced Security
Derg WTW - Upgrade of Filters and Chemical Dosing	Service Reservoir Security Phase 1
Glenhordial WTW expansion of existing sludge plant	South / South East Zonal Study South East Phase 1 Work Packages
Hallcraig Road, Enniskillen WM Ext	South / South East Zonal Study South Phase 1 Work Packages
High Priority Watermain Phase 2 Work Package	SR By-pass Schemes
Killyhevlin WTW - GAC	Sustainable Catchment Area Management Project (SCaMP NI)
Killyhevlin WTW Improvements to sludge settlement system	Water Resource and Supply Resilience Plan
MIMP West (Major Incident Mitigation Project West Region)	Watermain Rehabilitation, New and Replacement including FTS
Freeze Thaw Improvements	- Professional Services
Non-Infrastructure Major Works	WP134 High Priority Watermain Ph1
Omagh Phase 2 Watermain Rehab	WTW Effluent Quality
SEMD Surveys PC10 Water	WTW Resilience Programme
Service Reservoir Assessments - Site Access	WTWs Five Treatability Appraisal Studies



# Lisburn and Castlereagh City Council



## Mean Zonal Compliance (MZC)

	Target	2012	2013	2014
Overall Northern Ireland MZC	99.7%	99.8%	99.9%	99.8%
Lisburn & Castlereagh MZC	99.7%	99.8%	99.8%	99.8%

## 2014 water supply zones wholly or partially within the council area:

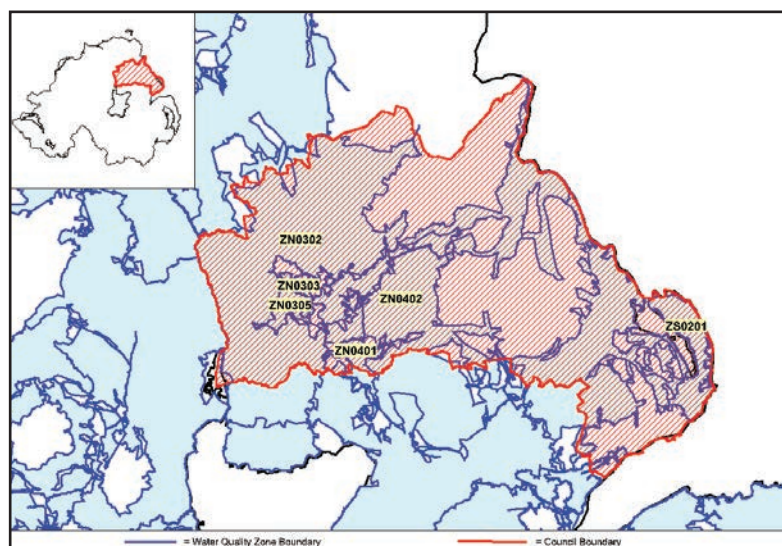
Zone Code	Zone Name	Zone Code	Zone Name
ZN0401	Dunore Point Antrim	ZS0502	Forked Bridge Dunmurry
ZS0103	Belfast Ballyhanwood	ZS0503	Forked Bridge Stoneyford
ZS0108	Belfast Purdysburn	ZS0601	Drumaroad Ballynahinch
ZS0111	Dunore Point Hydepark	ZS0802	Castor Bay Lurgan
ZS0404	Drumaroad Ards	ZS0902	Fofanny Dromore
ZS0501	Drumaroad Lisburn		

## 2014 water quality Capital Works Programmes affecting the council area:

CTM Extension - Barnett's Park to Purdysburn  
 High Priority Watermain Phase 2 Work Package  
 Lead Pipe Replacement Programme  
 Lisburn North Rural Phase 2 Watermain Improvements  
 Lisburn South Rural Phase 1 & Dunmurry Watermain improvements  
 Millmount Village Dundonald Water Main Upgrades  
 MIMP East (Major Incident Mitigation Project East Region)  
 Freeze Thaw Improvements  
 MIMP South (Major Incident Mitigation Project South Region)  
 Freeze Thaw Improvements  
 Non-Infrastructure Major Works

PC15 Watermain Rehabilitation WP 1: Fofanny/North Lisburn South  
 SEMD Surveys PC10 Water  
 Service Reservoir Assessments - Site Access  
 Service Reservoir Enhanced Security  
 Service Reservoir Security Phase 1  
 Strategic Link - Castor Bay to Belfast  
 Water Resource and Supply Resilience Plan  
 Watermain Rehabilitation, New and Replacement including FTS -  
 Professional Services  
 WTW Effluent Quality  
 WTW Resilience Programme

# Mid and East Antrim Borough Council



## Mean Zonal Compliance (MZC)

	Target	2012	2013	2014
Overall Northern Ireland MZC	99.7%	99.8%	99.9%	99.8%
Mid & East Antrim MZC	99.7%	99.8%	99.9%	99.9%

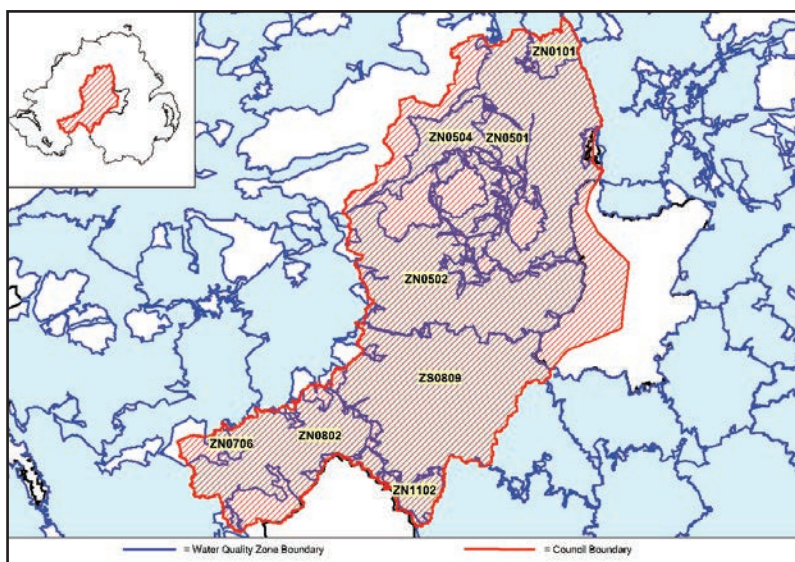
## 2014 water supply zones wholly or partially within the council area:

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		

## 2014 water quality Capital Works Programmes affecting the council area:

Browndod Road, Larne, Replacement Watermain	Northern Key Transport Corridor, Ballymena Watermain Scheme
Carrickfergus Phase 3 Watermain Improvements	PC15 Watermain Rehabilitation WP 3: Killylane
Carrickfergus Road, Larne, Water Quality Schemes	PC15 Watermain Rehabilitation WP 4: Ballymena Ph1
Carrickfergus Zone Watermain Improvements Phase 1	PC15 Watermain Rehabilitation WP 6: Dungonnell
Craigyhill Bungalows, Larne, Lead Supply Pipe Replacement Pilot	Replacement Watermain 2014/15 - Reactive, Bundle 1
Dorisland WTW - GAC Feasibility Study	Replacement Watermain 2014/15 - Reactive, Bundle 2
Dungonnell Zone Watermain Improvements	SEMD Surveys PC10 Water
Enhanced Site Security	Service Reservoir Assessments - Site Access
High Priority Watermain Phase 2 Work Package	Service Reservoir Enhanced Security
Killylane Dunore East Phase 1	Service Reservoir Security Phase 1
Lead Pipe Replacement Programme	Tardree Zone WM Imps
Loan Command SR, Inlet Watermain	Tully Rehab Work Packages
MIMP Central (Major Incident Mitigation Project Central Region)	Tully Service Reservoir
Freeze Thaw Improvements	Warwicks Row Carrickfergus Watermain Extension
MIMP East (Major Incident Mitigation Project East Region)	Water Resource and Supply Resilience Plan
Freeze Thaw Improvements	Watermain Rehabilitation, New and Replacement including FTS -
MIMP North (Major Incident Mitigation Project North Region)	Professional Services
Freeze Thaw Improvements	WTW Effluent Quality
Non-Infrastructure Major Works	WTW Resilience Programme
	WTWs Five Treatability Appraisal Studies

## Mid-Ulster District Council



### Mean Zonal Compliance (MZC)

	Target	2012	2013	2014
Overall Northern Ireland MZC	99.7%	99.8%	99.9%	99.8%
Mid Ulster MZC	99.7%	99.9%	99.9%	99.9%

### 2014 water supply zones wholly or partially within the council area:

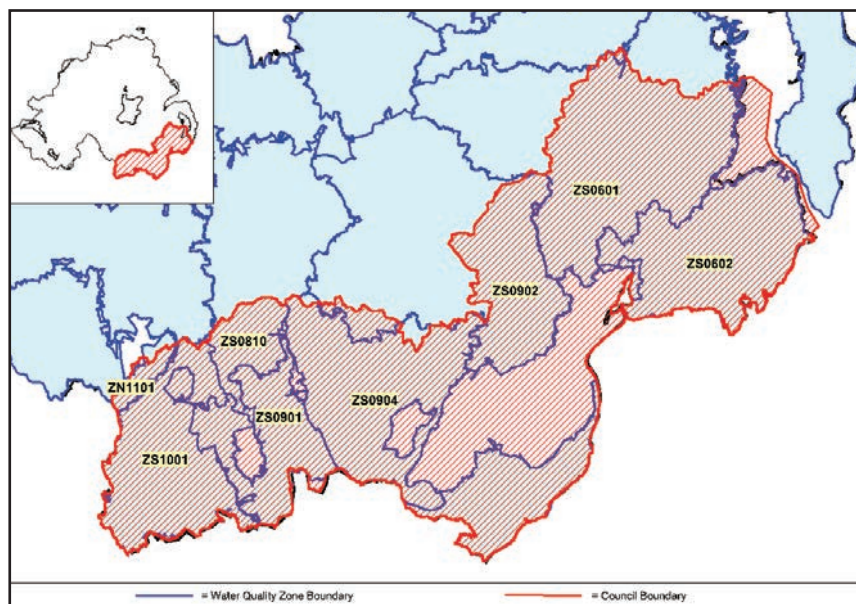
Zone Code	Zone Name	Zone Code	Zone Name
ZN0101	Ballinrees Coleraine	ZN0706	Lough Macrory Killyclogher
ZN0501	Moyola Magherafelt	ZN0802	Killyhevlin Enniskillen
ZN0502	Lough Fea Cookstown	ZN1102	Seagahan Armagh
ZN0504	Moyola Unagh Mormeal	ZS0809	Castor Bay Dungannon
ZN0705	Lough Macrory Beragh		

### 2014 water quality Capital Works Programmes affecting the council area:

A31 Magherafelt By-Pass, Watermain Diversions  
 Altmore Phase 2 Watermain Rehabilitation  
 Carland to Cookstown Strategic Trunk Main  
 Castor Bay to Dungannon Strategic Trunk Mains  
 Cookstown Phase 2 Watermain Improvements  
 Cookstown Phase 3 Watermain Improvements  
 Desertcreat Road / Lindsayville Road, Cookstown,  
 Replacement Watermain  
 Glenchuil Area Low Pressure Alleviation  
 High Priority Watermain Phase 2 Work Package  
 Lough Fea CWB Capacity Increase  
 MIMP Central (Major Incident Mitigation Project Central Region)  
 Freeze Thaw Improvements  
 MIMP South (Major Incident Mitigation Project South Region)  
 Freeze Thaw Improvements

MIMP West (Major Incident Mitigation Project West Region)  
 Freeze Thaw Improvements  
 Moneymore Road, Magherafelt WM Ext  
 Moyola Zone Watermain Improvements  
 Non-Infrastructure Major Works  
 Omagh Phase 2 Watermain Rehab  
 Replacement Watermain 2014/15 - Reactive, Bundle 2  
 SEMD Surveys PC10 Water  
 Service Reservoir Assessments - Site Access  
 Service Reservoir Enhanced Security  
 Service Reservoir Security Phase 1  
 Water Resource and Supply Resilience Plan  
 Watermain Rehabilitation, New and Replacement including FTS -  
 Professional Services  
 WTW Effluent Quality  
 WTW Resilience Programme

## Newry, Mourne and Down District Council



### Mean Zonal Compliance (MZC)

	Target	2012	2013	2014
Overall Northern Ireland MZC	99.7%	99.8%	99.9%	99.8%
Newry, Mourne & Down MZC	99.7%	99.8%	99.8%	99.9%

### 2014 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

### 2014 water quality Capital Works Programmes affecting the council area:

Ballintemple Zone Watermain Improvements	SEMD Surveys PC10 Water
Ballydougan to Newry Main Link Reinforcement	Sentry Hill SR Pipework
Bloody Bridge Water Pumping Station & New Link Main for Major Incident Mitigation	Service Reservoir Assessments - Site Access
Crieve Service Reservoir	Service Reservoir Enhanced Security
Enhanced Site Security	Service Reservoir Security Phase 1
Fofanny Banbridge Zone Watermain Improvements Phase 2	SR By-pass Schemes
High Priority Watermain Phase 2 Work Package	Sustainable Catchment Area Management Project (SCaMP NI)
Lough Ross Zone Watermain Improvements	Water Resource and Supply Resilience Plan
MIMP East (Major Incident Mitigation Project East Region)	Watermain Improvements, Newry, Phase 3
Freeze Thaw Improvements	Watermain Rehabilitation, New and Replacement including FTS - Professional Services
MIMP South (Major Incident Mitigation Project South Region)	WP101 Newry Phase2
Freeze Thaw Improvements	WP134 High Priority Watermain Ph1
Non-Infrastructure Major Works	WTW Effluent Quality
PC15 Watermain Rehabilitation WP 1: Fofanny/North Lisburn South	WTW Resilience Programme

## Appendix 4

### Water Quality Events

#### Major Drinking Water Quality Events in 2014

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, Ballymena, Ballymoney, Banbridge, Cookstown, Craigavon, Derry, Dungannon & South Tyrone, Fermanagh, Limavady, Magherafelt, Newry & Mourne, Omagh & Strabane.

#### Serious Drinking Water Quality Events in 2014

Date of Serious Event	Area and Estimate of Population/Properties Potentially Affected	Nature and Cause of Serious Event	Associated Council Area(s)
21 May - 22 May 2014	McVeigh's Well, Newtownabbey (1,000 properties)	A burst trunk main and the consequential loss of supply to downstream service reservoirs affected water quality and resulted in alternative supplies having to be deployed in North Belfast. There were over 100 related consumer contacts in the first four hours of the event and a significant number of appearance complaints.	Belfast & Newtownabbey

#### Significant Drinking Water Quality Events in 2014

Date of Significant Event	Area and Estimate of Population/Properties Potentially Affected	Nature and Cause of Significant Event	Associated Council Area(s)
17 January 2014	Drumaroad WTW (521,000 population)	Treatment difficulties led to elevated aluminium levels in the works final water and the related supply area.	Ards, Belfast, Castlereagh, Down, Lisburn & North Down
28 January 2014	Straid Road, Ahoghill (39 properties)	A contravention of the hydrogen ion (pH) standard occurred due to the presence of an asbestos cement-lined water main. A Consideration of Provisional Enforcement Order (CPEO) was issued and NI Water replaced the relevant section of mains.	Ballymena
16 February 2014	Ballinrees WTW (171,000 population)	Treatment difficulties led to aluminium and turbidity contraventions in the works final water.	Ballymoney, Coleraine, Limavady & Derry
3 May 2014	Killyhevlin WTW (77,000 population)	Turbidity and manganese contraventions were reported as a result of recurrently unrepresentative sampling due to sample line issues.	Dungannon & South Tyrone & Fermanagh
May -September 2014	Killyhevlin WTW (77,000 population)	Lack of adequate pesticide removal treatment led to persistent MCPA contraventions in the works final water. A treatment upgrade is ongoing.	Dungannon & South Tyrone & Fermanagh
May -September 2014	Derg WTW (39,000 population)	Lack of adequate pesticide removal treatment led to persistent MCPA contraventions in the works final water. A CPEO in relation to this issue was issued by the Inspectorate in early 2015.	Strabane

Date of Significant Event	Area and Estimate of Population/Properties Potentially Affected	Nature and Cause of Significant Event	Associated Council Area(s)
20 May 2014	Dungonnell WTW (35,000 population)	Aluminium, iron and turbidity contraventions were reported as a result of operational activity.	Ballymena & Moyle
June -September 2014	Dorisland WTW (131,000 population)	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.	Belfast, Carrickfergus, Larne & Newtownabbey
11 June 2014	Ballyhagan Road, Maghera (12 properties)	Iron and turbidity contraventions occurred in samples taken in response to consumer complaints. Consumer concern regarding the quality of water being supplied resulted in a water quality complaint to the minister.	Magherafelt
16 June 2014	Altnahinch WTW (31,000 population)	Operational work led to contraventions of the iron and turbidity standards in the works final water.	Ballymoney & Moyle
16 June - 25 July 2014	Quilly Road, Mullaghbawn (53 properties)	A <b>"Do Not Use Tap Water for Drinking or Cooking"</b> notice was issued following significant aluminium, manganese, iron and turbidity contraventions.	Newry & Mourne
23 June 2014	Killyhevin WTW (77,000 population)	Contraventions of the taste and odour standards occurred due to insufficient treatment for the removal of tastes and odours. A treatment upgrade is ongoing.	Dungannon & South Tyrone & Fermanagh
24 June – 26 September 2014	CamLough WTW (26,000 population)	Contraventions of the individual pesticide standard for MCPA occurred due to insufficient pesticide removal treatment.	Newry & Mourne
July and August 2014	Lough Bradan WTW (47,000 population)	Insufficient organics removal during the treatment process led to elevated THMs in the works final water. Contraventions of the THMs standard occurred in Lough Bradan Water Supply Zone in July and August.	Omagh
5 - 8 August 2014	Dorisland WTW (131,000 population)	An iron contravention occurred due to a filter backwash failure which impacted on the effectiveness of the treatment process.	Belfast, Carrickfergus, Larne & Newtownabbey
5 August 2014	Belleek WTW (5,000 population)	A contravention of the individual pesticide standard for MCPA occurred due to insufficient pesticide removal treatment.	Fermanagh & South Tyrone
14 August 2014 - 1 October 2014	Lisnaree Road, Banbridge (2 properties)	Iron and turbidity contraventions occurred in a sample taken in response to a 'Dirty Water' complaint. Bottled water was provided until a short section of main was replaced.	Banbridge
19 August 2014 - 2 September 2014	Carmoney WTW (51,000 population)	Contraventions of the THMs standard occurred during August and September due to inadequate organic removal during the treatment process.	Derry
1 September 2014	Altnahinch WTW (31,000 population)	Treatment difficulties were caused by a problem with the lime dosing plant. The works failed to shut down automatically in response to the low final water pH.	Ballymoney & Moyle
10 September 2014 - 28 October 2014	Caugh Hill WTW (74,000 population)	Contraventions of the standard for THMs occurred in Corrody Derry Water Supply Zone as a result of insufficient organics removal during the treatment process at Caugh Hill WTW.	Derry & Limavady
22 September 2014	Caugh Hill WTW (74,000 population)	A contravention of the hydrogen ion (pH) standard occurred following issues with the lime dosing plant which occurred as a result of an electrical power failure.	Derry & Limavady
16 October 2014	Dorisland WTW (131,000 population)	A contravention of the turbidity standard occurred following disturbances of the Clear Water Tank (CWT) related to urgent operational work.	Belfast, Carrickfergus, Larne & Newtownabbey

Date of Significant Event	Area and Estimate of Population/Properties Potentially Affected	Nature and Cause of Significant Event	Associated Council Area(s)
5 November 2014	Blackthorn Close, Kilcoo (100 population)	Consumer concern & local media interest due to chlorine taste & odour.	Down & Newry & Mourne
13 November 2014	Drumaroad WTW (521,000 population)	An aluminium contravention occurred due to operational problems which adversely affected the treatment process.	Ards, Belfast, Castlereagh, Down, Lisburn & North Down
24 November 2014	Drumaroad WTW (521,000 population)	A loss of disinfection occurred due to inadequacies in the disinfection regime and a lack of appropriate response to a low chlorine alarm. A Provisional Enforcement Order (PEO) was issued by the Inspectorate and remedial measures were completed by NI Water on 27 March 2015.	Ards, Belfast, Castlereagh, Down, Lisburn & North Down
25 November 2014	Dorisland WTW (131,000 population)	A contravention of the iron standard occurred in the works final water following an electrical power surge which led to loss of effective treatment.	Belfast, Carrickfergus, Larne & Newtownabbey
1 December 2014	Killylane WTW (52,000 population)	An aluminium contravention occurred in the works final water as a result of treatment difficulties during refurbishment work.	Ballymena, Carrickfergus, Larne & Newtownabbey
8 December 2014	Clay Lake WTW (9,000 population)	A contravention of the individual pesticide standard for Clopyralid occurred due to lack of adequate pesticide removal treatment.	Armagh
8 December 2014	Dungonnell WTW (31,000)	A contravention of the individual pesticide standard for Clopyralid occurred in the works final water. There is no specific pesticide removal treatment at this works as it is an historically low risk catchment.	Ballymena & Moyle
8 December 2014	Killyhevin WTW (77,000 population)	A contravention of the individual pesticide standard for Clopyralid occurred due to lack of adequate pesticide removal treatment.	Dungannon & South Tyrone & Fermanagh
8 December 2014	Dorisland WTW (131,000 population)	A contravention of the individual pesticide standard for Clopyralid occurred in the works final water. Work on the installation of specific pesticide removal treatment was completed in early 2015.	Belfast, Carrickfergus, Larne & Newtownabbey
9 December 2014	Lough Fea WTW (44,000 population)	A contravention of the individual pesticide standard for Clopyralid occurred in the works final water. There is no specific pesticide removal treatment at this works.	Cookstown, Dungannon & South Tyrone & Magherafelt
23 December 2014	Lough Macrory WTW (35,000 population)	A turbidity contravention occurred in the works final water following a plant shutdown. The clear water tank was low and the normal operational response did not occur due to Industrial Action by some NI Water staff.	Omagh
30 December 2014	Lough Bradan WTW (47,000 population)	A turbidity contravention occurred in the works final water following a plant shutdown. The clear water tank was low and the normal operational response did not occur due to Industrial Action by some NI Water staff.	Fermanagh & South Tyrone & Omagh

#### Minor Drinking Water Quality Events in 2014

Date of Minor Event	Area and Estimate of Population/Properties Potentially Affected	Nature and Cause of Minor Event	Associated Council Area(s)
04 January 2014	Derg WTW (39,000 population)	Primary disinfection was lost when the OSEC plant was damaged due to high winds. Disinfection was maintained at all times and there were no water quality contraventions.	Strabane
30 January 2014	Castor Bay WTW (334,000 population)	No cause was determined for a contravention of the standard for Clostridium perfringens. All resamples were satisfactory.	Armagh, Banbridge, Craigavon, Dungannon & South Tyrone, Lisburn & Newry & Mourne

Date of Minor Event	Area and Estimate of Population/Properties Potentially Affected	Nature and Cause of Minor Event	Associated Council Area(s)
03 February 2014	Killyhevlin WTW (77,000 population)	A turbidity contravention was reported as a result of unrepresentative sampling.	Dungannon & South Tyrone & Fermanagh
24 February 2014	Carran Hill WTW (15,000 population)	An oil spill in Lough Ross had the potential to impact on the final water quality from Carran Hill WTW but no oil entered the intake.	Newry & Mourne
20 March 2014	Lough Fea WTW (44,000 population)	No cause was determined for a contravention of the coliform bacteria standard. All resamples were satisfactory.	Cookstown, Dungannon & South Tyrone & Magherafelt
16 April 2014	Fofanny WTW (96,000 population)	No cause was determined for a contravention of the standard for Clostridium perfringens. All resamples were satisfactory.	Banbridge, Craigavon, Down & Newry & Mourne
24 April 2014	Ballinrees WTW (171,000 population)	No cause was determined for a contravention of the standard for Clostridium perfringens. All resamples were satisfactory.	Ballymoney, Coleraine, Derry & Limavady
16 June 2014 - 4 July 2014	Pomeroy Road, Pomeroy (2 properties)	Bottled water was supplied to 2 properties following significant contraventions of the iron and turbidity standards in a consumer complaint sample.	Cookstown
29 June 2014	Drumaroad WTW (521,000 population)	No cause was determined for a contravention of the standard for Clostridium perfringens. All resamples were satisfactory.	Ards, Belfast, Castlereagh, Down, Lisburn & North Down
05 August 2014	Glenhordial WTW (34,000 population)	The works was shut down as a precautionary measure following ingress of flood water into the plant building. This prevented any impact on final water quality.	Dungannon & South Tyrone & Omagh
18 August 2014	Killylane WTW (52,000 population)	No cause was determined for the detection of Cryptosporidium in the works final water. All resamples were satisfactory.	Ballymena, Carrickfergus, Larne & Newtownabbey
01 September 2014	Caugh Hill WTW (74,000 population)	A contravention of the iron standard was reported due to unrepresentative sampling.	Derry & Limavady
05 September 2014	Carmony WTW (51,000 population)	An oil spill on the River Faughan had the potential to contaminate the raw water source for Carmony WTW. There was no impact on drinking water quality.	Derry
08 September 2014	Dunore Point WTW (521,000 population)	No cause was determined for a contravention of the Enterococci standard. All resamples were satisfactory.	Antrim, Ards, Ballymena, Belfast, Castlereagh, Larne, Lisburn, Newtownabbey & North Down
07 October 2014	Rathlin WTW (300 population)	No cause was determined for the detection of Cryptosporidium in the works final water. All resamples were satisfactory.	Moyle
20 October 2014	Castor Bay WTW (334,000 population)	No cause was determined for a contravention of the standard for Clostridium perfringens. All resamples were satisfactory.	Armagh, Banbridge, Craigavon, Dungannon & South Tyrone, Lisburn & Newry & Mourne
13 October 2014	Lettershandoney (150 properties)	Consumer concern and media interest occurred when an asbestos cement main was burst by contractors during the installation of a new drainage pipeline.	Derry
04 December 2014	Seagahan WTW (35,000 population)	No cause was determined for a contravention of the coliform bacteria standard. All resamples were satisfactory.	Armagh & Dungannon & South Tyrone



Date of Minor Event	Area and Estimate of Population/Properties Potentially Affected	Nature and Cause of Minor Event	Associated Council Area(s)
23 December 2014	Dunore Point WTW (521,000 population)	No cause was determined for a contravention of Clostridium perfringens standard. All resamples were satisfactory.	Antrim, Ards, Ballymena, Belfast, Castlereagh, Larne, Lisburn, Newtownabbey & North Down

#### Not Significant Drinking Water Quality Events in 2014

Date of Not Significant Event	Area and Estimate of Population/Properties Potentially Affected	Nature and Cause of Not Significant Event	Associated Council Area(s)
14 January 2014	Killyhevlin WTW (77,000 population)	A turbidity contravention was reported due to unrepresentative sampling.	Dungannon & South Tyrone, Fermanagh & Omagh
15 April 2014	Drumaroad WTW (521,000 population)	A Hydrogen ion (pH) contravention was reported due to unrepresentative sampling.	Ards, Belfast, Castlereagh, Down, Lisburn & North Down
25 July 2014	Rehaghy SR (64,000 population)	Water was tankered into Rehaghy SR to maintain supplies during increased demand due to a burst main.	Armagh & Dungannon & South Tyrone
6 August 2014	Glen Road, Coalisland (1 property)	A <b>'Do Not Use Tap Water for Drinking or Cooking'</b> notice was issued to a single property following the detection of petrol odours.	Dungannon & South Tyrone
12 August 2014 - 21 August 2014	Ashbrook Mews, Newry (2 properties)	Two contraventions of the odour standard occurred in adjacent properties following the relocation of a home heating oil tank.	Newry & Mourne
18 October 2014	Fofanny WTW (97,000 population)	There was potential for contamination of Lough Island Reavy (a raw water source for Fofanny WTW) when a car was immersed in the reservoir following a fatal accident during the Down Rally.	Banbridge, Craigavon, Down, Newry & Mourne
29 September 2014	Ballymurphy Road, Belfast (3 properties)	Coliform bacteria contraventions occurred at 3 properties following installation of a new section of main.	Belfast
19 November 2014	Lough Macrory (35,000 population)	Turbidity, iron & manganese contraventions were reported due to unrepresentative sampling.	Dungannon & South Tyrone & Omagh
27 November 2014	Rathlin SR (300 population)	A coliform bacteria contravention was reported due to unrepresentative sampling.	Moyle

## Appendix 5

### 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 will 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 also promotes and advocates the benefits of using approved contractors who are members of WaterSafe, the Plumbing Industry Licensing Scheme (PILS), as administered by the trade association known as the Scottish and Northern Ireland Plumbing Employers Federations (SNIPEF).

NI Water has a dedicated team of 5 front line water regulation inspectors across the province headed by a Field Manager and 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 (WPD) 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. In the reporting year one relaxation was applied for by NI Water and was granted by WPSD following a public consultation. This related to the "retro fitting of water saving interruptible flush arrangements to cisterns before 3/8/09" bringing Northern Ireland into line with the rest of GB.

### NI Water Customer Base

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

Description	Number
**Total number of connected properties	828,060
**Total number of new connections from 1st Jan 2014 – 31st Dec 2014	
Up to and including 32mm dia.	4671
Over 32mm dia.	35

\*\*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	0
Spending between 0% and 5% of time	1

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 and part owner, NI Water has representation on the WRAS Board, Technical Committee and Technical Support Group national forums which each meet 3 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 / manufacturer 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.

## Notifications

Description	Number
**Total No. of water connection application forms received between 01/Jan/2014 and 31/Dec/2014	6410
**Total No. of new connections made between 01/Jan/2014 and 31/Dec/2014	4671
*Total number of written customer notifications other than those associated with new connections applications Reduced Pressurised Zone Valves (RPZ) etc.	18

\*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.

## Approved Contractors Scheme

Northern Ireland Water recommends that customers use an approved plumbing contractor when installing, altering or repairing plumbing systems, water fittings and water-using appliances. 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 **0845 224 0391**.

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

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
No of members in Northern Ireland.	82	74	71	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
No of members in WaterSafe			35	36
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

• Financial Year from SNIPEF.

## Inspections (Other than those arising from Notification)

Description	Number 2013	Number 2014
*Total number of Domestic and Non-Domestic Inspections	1076	1320
*Total number of active Contraventions recorded in year	2762	1775
*Total number of closed Contraventions in year	1538	725
*Total Number of outstanding contraventions in year	1224	1050

\* 2014 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.

Where a serious risk of contamination or waste of water is observed the process will be fast tracked to facilitate the urgent resolution of non-compliance.

## 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 780 of these premises during the reporting year.

### Number of Reactive Water Regulation inspections (37) attributed to water quality incidents and NI Water observations

Date	Address
Jan-14	Heavy Industry (Belfast)
Feb-14	Leisure Facility (Antrim)
Mar-14	Tourist Attraction (Belfast)
Apr-14	Sports Facility (Belfast)
Apr-14	Manufacturing (Antrim)
May-14	Agricultural Show
June-14	Sea Port (Antrim)
July-14	Medical Facility (Fermanagh)
Aug-14	Medical Facility (Tyrone)
Sept-14	Private residence (Londonderry)
Oct-14	Sports Facility (Down)
Nov-14	Laundry (Antrim)
Dec-14	Domestic/Agriculture premises

**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 is planning to procure a new or updated Water Regulation software system or cloud based service in 2015/16. This is required to replace the ageing Connect 2 system.

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
- Secured a relaxation associated with the "retro fitting of water saving interruptible flush arrangements to cisterns before 3/8/09" bringing Northern Ireland into line with the rest of GB
- 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
- Promoted compliance with the Water Regulations at every opportunity and attended conferences, trade shows and agricultural shows when invited

- Developed and published "Keeping Water Safe in Premises" document. This sets out the roles and responsibilities appropriate for water suppliers and customers in ensuring consistency of compliance across the UK
  - Participated in water industry national working groups to further explore opportunities to promote regulatory consistency across the industry
- NI Water has with other UK Water Suppliers facilitated the setting up of the WaterSafe organisation which will help customers find their nearest Approved Contractor
- NI Water meets quarterly with WPSD (DRD) to review the number of inspections completed, contraventions found, resolved and outstanding. An interim monitoring report has been developed by NI Water to provide WPSD with a more detailed insight into the type of inspections being completed, findings and resolution processes.

### Looking Forward

- Further 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
- 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)
  - This overarching policy will necessitate water companies making their Water Fittings Regulation Compliance policies available upon request or through their web sites. This policy should have been drafted and implemented in the reporting year but has been scheduled for completion late 2015
- 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
  - NI Water plans to replace or upgrade the current reporting system in 2015

## Appendix 6

### Glossary of Technical Terms

<b>Aesthetic</b>	Associated with the senses of taste, smell and sight.
<b>Authorised Supply Point</b>	A sampling point within the distribution system authorised by the DWI for certain parameters, because the results of the analysis of such samples are unlikely to differ in any material respect from the results of the analysis of samples taken from customer taps.
<b>Catchment</b>	The area of land that drains into a watercourse.
<b>Coagulation</b>	The process of aggregating colloidal and fine particulate matter into a settleable material.
<b>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>Cryptosporidium</b>	A protozoan parasite.
<b>Determination</b>	A single analytical result for a specific parameter.
<b>Distribution systems</b>	NI Water's network of mains, pipes, pumping stations and service reservoirs through which treated water is conveyed to customers.
<b>Drinking Water Directive</b>	European Council Directive (98/83/EC) relating to the quality of water intended for human consumption.
<b>DWI</b>	Northern Ireland Drinking Water Inspectorate - has an independent responsibility to audit drinking water quality compliance against the standards set in the Regulations.
<b>DWSP</b>	'Drinking Water Safety Plan' Based on a comprehensive risk assessment and risk management approach to all the steps in a water supply chain.
<b>EO</b>	'Enforcement Order' – third stage in DWI enforcement process.
<b>Event</b>	A situation affecting or threatening to affect drinking water quality.
<b>Exceedence</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 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.
<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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