



Briefing for the Public Petitions Committee

Petition Number: [PE1646](#)

Main Petitioner: Caroline Hayes

Subject: Drinking water supplies in Scotland

Calls on the Parliament to urge the Scottish Government to i) review the role of the Drinking Water Quality Regulator and ii) commission independent research into the safety of the chloramination of drinking water.

Background

The role of the Drinking Water Quality Regulator

An overview of the [governance arrangements for Scottish Water](#) is set out below:

How the water industry is run in Scotland



The post of Drinking Water Quality Regulator (DWQR) was established by Section 7 of The [Water Industry \(Scotland\) Act 2002](#) which set out its responsibility for enforcing drinking water quality standards in Scotland.

Overall, the 2002 Act defines the structure of the Scottish water industry following the merger of the three former authorities to create Scottish Water. The [DWQR web site](#) sets out some of the key points:

- The post of Drinking Water Quality Regulator for Scotland (DWQR), as well as Scottish Water and the Water Industry Commission, was created.
- DWQR is responsible for enforcing [The Public Water Supplies \(Scotland\) Regulations 2014](#).
- DWQR is independent of Scottish Ministers.
- DWQR has powers to obtain information, power of entry or inspection and, power of enforcement.
- DWQR also has emergency powers to require the water supplier to carry out works that ensure the quality of water supplied is safe for public consumption.

[DWQR describes its role](#) as follows:

“The Drinking Water Quality Regulator for Scotland (DWQR) exists to ensure that drinking water in Scotland is safe to drink. This is done by ensuring that everything Scottish Water does safeguards the quality of the public supply, through a process of inspections and monitoring”.

“Additionally, DWQR has a role to ensure drinking water is not only safe, but pleasant to drink and has the trust of consumers”

“DWQR ensures that Scottish Water complies with its duties in respect of the quality of public drinking water supplies in Scotland. This is done by:

Auditing and inspecting Scottish Water’s water treatment works, operational activities and laboratories to ensure that the quality of drinking water is maintained at all times and that tests undertaken to check the quality of the water supplied are carried out accurately and reported correctly;

- Investigating Scottish Water’s response to events and incidents that could affect drinking water quality
- Receiving, interpreting and presenting data on water quality throughout Scotland
- Participating in the investment planning process to ensure that any necessary improvements to water quality are delivered
- Checking that Scottish Water responds appropriately to any concerns from consumers about drinking water quality and

that information it publishes on the subject is accurate and appropriate

- Ensuring future issues that may affect drinking water quality in Scotland are adequately understood, and that any knowledge gaps are filled through research
- Providing Scottish Ministers with an annual report on the quality of drinking water in Scotland.

The DWQR also supervises local authorities' enforcement of the regulations governing the quality of private water supplies in Scotland, which serve about 3% of the population.”

Information on the range of **audits and inspections** carried out by DWQR, along with the results of previous inspections are available here <http://dwqr.scot/regulator-activity/audit-and-inspection/> .

DWQR describes its audit process as follows:

“Audits are an important way of checking how Scottish Water is performing and ensuring that the Regulations are being complied with. DWQR regularly inspects the following areas:

- Water Treatment Works
- Management of the Distribution System
- Sampling and Analytical Services
- Consumer Contacts about Water Quality

When selecting areas to audit, every attempt is made to follow a risk-based approach at the same time as ensuring the audit programme covers the whole of Scotland.”

The DWQR annual report [describes](#) the inspection process in more detail:

“DWQR uses standardised inspection templates to ensure consistency between inspectors, and the audit process is subject to an ISO accredited procedure. DWQR also participates in benchmarking audits with other regulators in the UK and beyond in order to drive consistency and spread best practice.

The Petitioner, however, indicates that in the case of Badenoch and Strathspey, although it undertook “a full audit, the DWQR found no issues with the treatment works which it said were working within normal parameters. It took the intervention of a third party – our MP – to request an independent survey, which eventually revealed that the quality of the drinking water was substandard”

Quality of drinking water in Scotland

The (2015) annual report also gives an overview of the quality of drinking water in Scotland and includes the following:

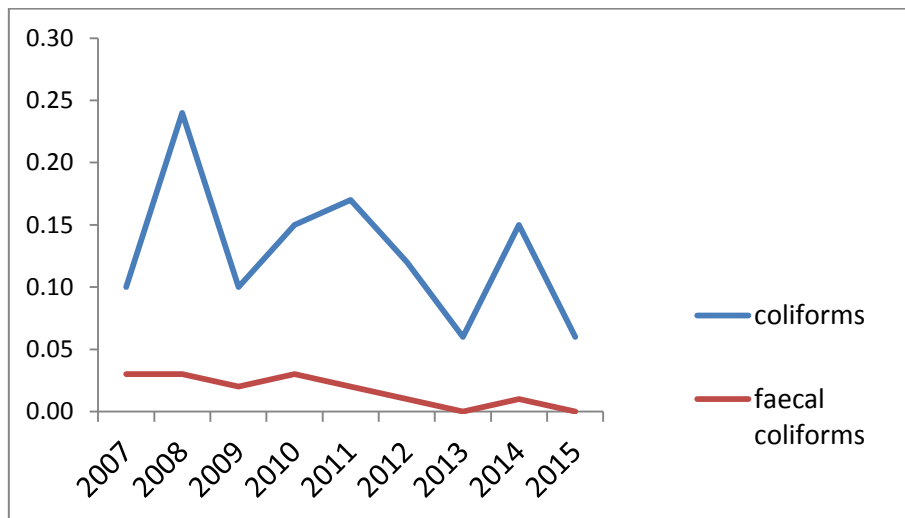
“In 2015 the figure for compliance with the standards set out in our legislation and in the EU Drinking Water Directive was 99.92%. This is the highest ever compliance”

“The numbers of contacts received by Scottish Water from consumers who are dissatisfied with the quality of their supply is also an important indicator. The number of contacts continues to decrease, with only 0.2% of consumers reporting concerns with the quality of their supply, almost half that of numbers reported six years ago.”

The DWQR [performance data and tables](#) provide a range of detailed statistics on water quality and performance across Scotland, including the following examples:

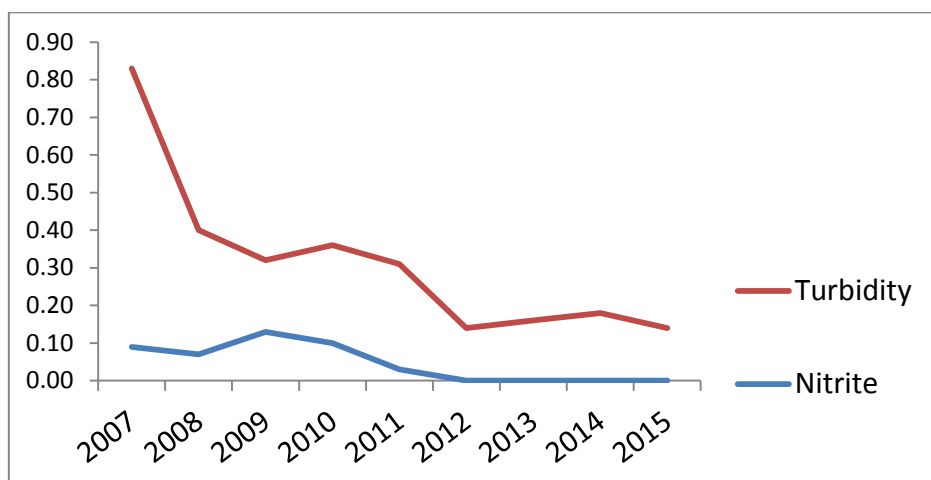
Microbiological quality of water leaving treatment works

(Percentage of tests shown to contain coliforms¹)



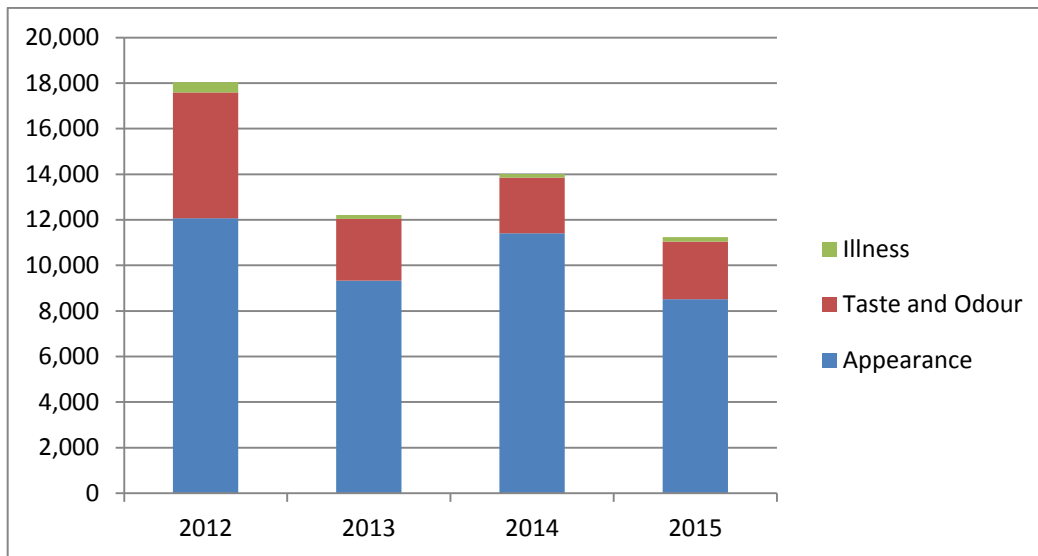
Chemical quality of water leaving treatment works

(Percentage exceeding designated standard)



¹ Coliforms are bacteria that are always present in the digestive tracts of animals, including humans, and are found in their wastes. They are also found in plant and soil material.

Consumer contacts with Scottish Water regarding water quality



Chloramination and health

On the chloramination of drinking water, the Petitioner states that:

“the chloramination process involves a combination of chlorine and ammonia and can form toxic by-products, including cancer carcinogens. This process is being banned in some states in the USA as it has been shown that the by-products can be connected to a range of health concerns including weakening the immune system and disrupting the central nervous system.”

Scottish Water have published a [fact sheet on chloramination](#) which states that:

“Chloramination is based on the formation of chloramines, formed when chlorine combines with very small quantities of ammonia at our treatment works.

This treatment process lasts longer within the pipe distribution system than using chlorine on its own so there is no need to add additional chlorine along the network of pipes. Plus, unlike chlorine, chloramines have the benefit of having no significant taste or odour.

Chloramination is widely practiced in other parts of the UK to treat public water supplies. As part of our long term investment programme to improve water quality for our customers, Scottish Water is gradually increasing the number of areas in Scotland being supplied with chloraminated water.”

[Health Protection Scotland](#) has suggested a number of sources of evidence regarding the health effects of chloramine in drinking water on humans.

[WHO Guidelines for Drinking Water Quality - 4th Edition](#) - The World Health Organisation guidelines address a vast range of chemical and microbiological agents that may be present in drinking water. Chloramines are addressed within Chapters 10 and 12 of the document. WHO set a guideline value (GV) of 3000 micrograms per litre (or 3 milligrams per litre) for monochloramine, but do not set GVs for di- or trichloramine (due to lack of available evidence). The justification for setting this guideline level for monochloramine is provided within the [WHO Background Document for Monochloramine in Drinking Water](#). The limited evidence on health effects available at the time of publication (2004) is summarised in Chapter 6.

[US EPA Drinking Water Criteria Document](#) - The United States Environment Protection Agency publish evaluations of evidence on health effects of contaminants, used to establish standards or guideline levels for contaminants. The health effects of chloramines are summarised in Section VI of this document. However, this is very limited and deals with several pathways of exposure rather than just drinking water.

[CDC Chloramine Q&A](#) - Centres for Disease Control and Prevention provide some very basic information relating to health effects of chloramines, but again, due to lack of published evidence, this tends to focus more on impacts on dialysis.

[IARC Monograph for Chloramine](#) - The International Agency for Research on Cancer have evaluated the evidence on carcinogenicity for chloramine (monochloramine) and concluded that chloramine is not classifiable as to its carcinogenicity to humans (Group 3). This report concludes:

“There is *inadequate evidence* in humans for the carcinogenicity of chloramine”

Water quality in the Strathspey area

Scottish Water has provided [information for local residents in the Aviemore area](#) about “supply enhancements”. This includes the results of surveys and consultation with customers:

The [Strathspey and Badenoch Herald](#) has covered the issue and has reported the results of:

“...a damning independent survey to gauge what residents in the Strath think of the tap water and the utility company. Only two per cent of businesses and seven per cent of residents were "very satisfied" with the water being supplied. Overall, just 30% of business and 39% of residents interviewed were satisfied.

One third of those surveyed were worried about the impact on their health and trust in the company was also low. The majority who responded said that their perception of tap water in the area had worsened in the past five years.

Scottish Parliament Action

[Petition PE00842](#), lodged in April 2005, called on the Parliament “to urge the Scottish Executive to review the use of chloramines disinfectant in the treatment of drinking water.” Following the gathering of evidence the petition was closed in May 2006.

Scottish Water presents its annual report to Parliament and is regularly invited to give evidence, the latest occasion to the [Environment, Climate Change and Land Reform Committee on 6th December 2016](#).

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07 April 2017

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