

# Drinking Water Quality in Public Supplies 2018



## ENVIRONMENTAL PROTECTION AGENCY

The Environmental Protection Agency (EPA) is responsible for protecting and improving the environment as a valuable asset for the people of Ireland. We are committed to protecting people and the environment from the harmful effects of radiation and pollution.

### The work of the EPA can be divided into three main areas:

**Regulation:** *We implement effective regulation and environmental compliance systems to deliver good environmental outcomes and target those who don't comply.*

**Knowledge:** *We provide high quality, targeted and timely environmental data, information and assessment to inform decision making at all levels.*

**Advocacy:** *We work with others to advocate for a clean, productive and well protected environment and for sustainable environmental behaviour.*

## Our Responsibilities

### Licensing

We regulate the following activities so that they do not endanger human health or harm the environment:

- waste facilities (*e.g. landfills, incinerators, waste transfer stations*);
- large scale industrial activities (*e.g. pharmaceutical, cement manufacturing, power plants*);
- intensive agriculture (*e.g. pigs, poultry*);
- the contained use and controlled release of Genetically Modified Organisms (*GMOs*);
- sources of ionising radiation (*e.g. x-ray and radiotherapy equipment, industrial sources*);
- large petrol storage facilities;
- waste water discharges;
- dumping at sea activities.

### National Environmental Enforcement

- Conducting an annual programme of audits and inspections of EPA licensed facilities.
- Overseeing local authorities' environmental protection responsibilities.
- Supervising the supply of drinking water by public water suppliers.
- Working with local authorities and other agencies to tackle environmental crime by co-ordinating a national enforcement network, targeting offenders and overseeing remediation.
- Enforcing Regulations such as Waste Electrical and Electronic Equipment (WEEE), Restriction of Hazardous Substances (RoHS) and substances that deplete the ozone layer.
- Prosecuting those who flout environmental law and damage the environment.

### Water Management

- Monitoring and reporting on the quality of rivers, lakes, transitional and coastal waters of Ireland and groundwaters; measuring water levels and river flows.
- National coordination and oversight of the Water Framework Directive.
- Monitoring and reporting on Bathing Water Quality.

### Monitoring, Analysing and Reporting on the Environment

- Monitoring air quality and implementing the EU Clean Air for Europe (CAFÉ) Directive.
- Independent reporting to inform decision making by national and local government (*e.g. periodic reporting on the State of Ireland's Environment and Indicator Reports*).

### Regulating Ireland's Greenhouse Gas Emissions

- Preparing Ireland's greenhouse gas inventories and projections.
- Implementing the Emissions Trading Directive, for over 100 of the largest producers of carbon dioxide in Ireland.

### Environmental Research and Development

- Funding environmental research to identify pressures, inform policy and provide solutions in the areas of climate, water and sustainability.

### Strategic Environmental Assessment

- Assessing the impact of proposed plans and programmes on the Irish environment (*e.g. major development plans*).

### Radiological Protection

- Monitoring radiation levels, assessing exposure of people in Ireland to ionising radiation.
- Assisting in developing national plans for emergencies arising from nuclear accidents.
- Monitoring developments abroad relating to nuclear installations and radiological safety.
- Providing, or overseeing the provision of, specialist radiation protection services.

### Guidance, Accessible Information and Education

- Providing advice and guidance to industry and the public on environmental and radiological protection topics.
- Providing timely and easily accessible environmental information to encourage public participation in environmental decision-making (*e.g. My Local Environment, Radon Maps*).
- Advising Government on matters relating to radiological safety and emergency response.
- Developing a National Hazardous Waste Management Plan to prevent and manage hazardous waste.

### Awareness Raising and Behavioural Change

- Generating greater environmental awareness and influencing positive behavioural change by supporting businesses, communities and householders to become more resource efficient.
- Promoting radon testing in homes and workplaces and encouraging remediation where necessary.

### Management and structure of the EPA

The EPA is managed by a full time Board, consisting of a Director General and five Directors. The work is carried out across five Offices:

- Office of Environmental Sustainability
- Office of Environmental Enforcement
- Office of Evidence and Assessment
- Office of Radiation Protection and Environmental Monitoring
- Office of Communications and Corporate Services

The EPA is assisted by an Advisory Committee of twelve members who meet regularly to discuss issues of concern and provide advice to the Board.



# Drinking Water Quality in Public Supplies 2018

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*Cover photo: Lough Guitane treatment plant. Photo courtesy of Glan Aqua Ltd*

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Appendix 1 2018 Monitoring and Compliance Summary for public water supplies.

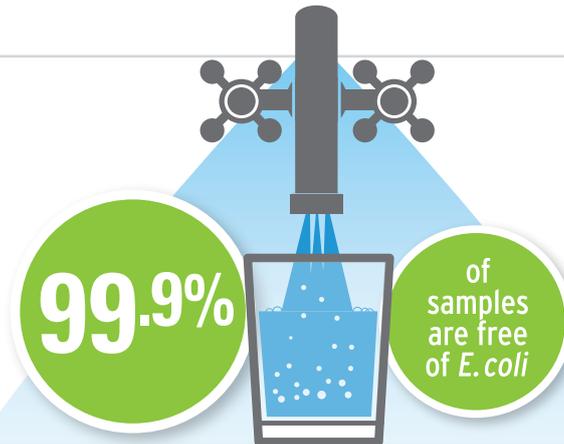
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Appendix 4 Status of Directions at end of 2018.

Appendix 5 Remedial Action List Summary by county or area in 2018.

# DRINKING WATER QUALITY PUBLIC SUPPLIES



## Drinking water quality public supplies 2018

### If there's a problem



### National priorities

- Disinfection keeping water free of bacteria
- Trihalomethanes minimising disinfection by-products
- Lead eliminating lead from our networks
- Pesticides preventing them from entering our waters
- Water Safety Plans managing the risks to our supplies

Irish Water to develop and implement strategies

### What you can do

- Replace any lead fittings in your home
- Don't waste water
- Use pesticides responsibly

For more information:  
[www.epa.ie](http://www.epa.ie) and [www.water.ie](http://www.water.ie)



## Key findings for 2018

### Quality of Public Water Supplies

- The quality of drinking water in public supplies remains high.
- Nearly two-thirds of all boil water notices issued in 2018 were short-term, in place for less than 30 days

### Main Issues

- Increase in detections of the parasite *Cryptosporidium*
- High levels of disinfection by-products
- Persistent pesticide failures
- Lead pipe connections in and around properties

### Progress in 2018

- Reduction in number of supplies on EPA Remedial Action List from 77 in 2017 to 63 in 2018
- Irish Water completed disinfection upgrades at 152 sites
- Rate of replacement of lead connections by Irish Water has increased

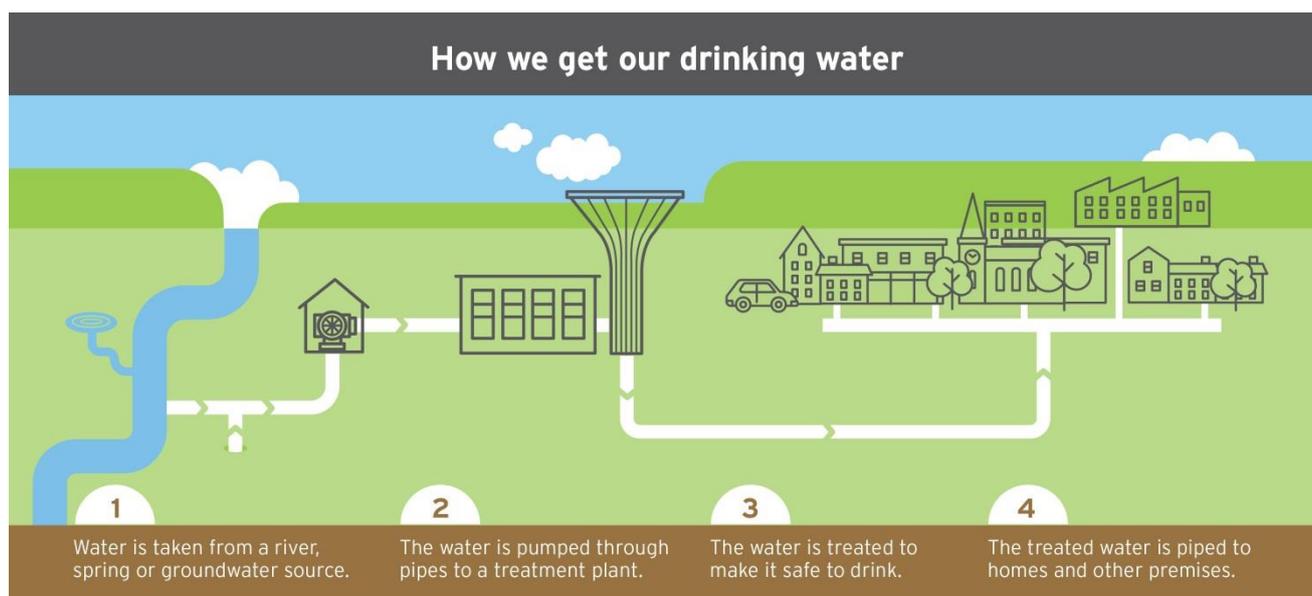
### Action Required

- Achieve good disinfection that keeps water free of harmful bacteria while minimising disinfection by-products (Trihalomethanes)
- Eliminate lead from our pipes
- Put Drinking Water Safety Plans in place to assess hazards and take action to protect supplies into the future

## 1 Introduction

This report is about the quality of drinking water in public water supplies during 2018. The information in the report is based on the assessment of monitoring results reported to the EPA by Irish Water, and on the EPA's enforcement activities.

A drinking water supply includes the abstraction, treatment, storage and distribution of water from the water source to the consumer's tap (see Figure 1). In 2018, Ireland had 804 public water supplies serving approximately [1.3 million households](#)<sup>1</sup>.



**Figure 1: How do we get our drinking water?**

### Who does what?

**Irish Water** is responsible for providing and developing public water services; and ensuring drinking water quality meets the standards in the Drinking Water Regulations.

The **Environmental Protection Agency (EPA)** is the drinking water quality regulator, responsible for enforcing the Drinking Water Regulations.

The **Health Service Executive (HSE)** is responsible for public health and must be consulted by Irish Water where there is a failure to meet the standards in the Drinking Water Regulations, or where there is a public health risk.

The **Commission for Regulation of Utilities (CRU)** is the economic regulator for public water services, responsible for ensuring that Irish Water operate in an economic and efficient manner.

### How do I find out about my drinking water?

Customers that get their drinking water from a public water supply can find out more about their drinking water quality from the Irish Water website, [www.water.ie](http://www.water.ie)<sup>2</sup>.

<sup>1</sup> CSO, Census 2016

<sup>2</sup> <https://www.water.ie/water-supply/water-quality/>

## What are the priorities for drinking water?

The EPA has identified the most important issues which should be addressed on a national level, to protect and improve public drinking water supplies. Table 1 lists these priority issues and the actions required to improve water supplies. More information on these actions will be discussed later in the report.

**Table 1: National priorities for drinking water supplies**

Priority Issue	Actions
<b>Ensure all water treatment plants are effective</b>	The EPA's Remedial Action List is a list of all public water supplies in need of significant action. Irish Water have prepared action programmes, with completion dates, for all public water supplies on the EPA's Remedial Action List. Irish Water should continue to progress the action programmes to make sure completion dates are met.
<b>Keep water free of harmful bacteria (disinfection)</b>	To prevent people from needing to boil their water, Irish Water should continue to upgrade their disinfection systems under the National Disinfection Programme. When people are required to boil their water, Irish Water are responding quickly to ensure the boil water notice is in place for as short a time as possible.
<b>Minimise harmful disinfection by-products (trihalomethanes)</b>	Harmful chemicals (trihalomethanes) can be formed when natural matter in water, such as rotting vegetation, reacts with chlorine during the disinfection process. To minimise this, Irish Water are working to ensure that their treatment systems remove as much natural matter as possible from their drinking water sources before disinfection.
<b>Eliminate lead from our water pipes</b>	Lead is harmful to our health. Irish Water have replaced all public drinking water mains that were made from lead. Public bodies should assess public buildings (schools, hospitals, libraries) for lead pipes and fittings and replace any lead pipework found. Private home owners should be encouraged to replace lead pipework in their homes or businesses.
<b>Prevent pesticides from entering our waters</b>	Pesticides should not be present in drinking water sources. Irish Water are working with other responsible organisations to protect drinking water sources from contamination with pesticides and promote responsible use of pesticides. The Department of Agriculture, Food and the Marine authorises pesticides for use in Ireland.
<b>Manage risks to our public water supplies</b>	To ensure a safe supply of drinking water, Irish Water have started to prepare a Drinking Water Safety Plan for every public water supply. This involves identifying all the risks in a supply and outlining actions to avoid or reduce the risks.

## 2 Drinking water quality in public supplies

This section of the report presents the EPA's findings on drinking water quality in 2018.

### How is water quality assessed?

Irish Water carry out drinking water quality monitoring. They prepare **annual monitoring programmes** to ensure that a specific number of samples are taken at planned times throughout the year and at planned locations in the distribution network. These samples are taken from taps in homes and businesses. The EPA audits Irish Water's monitoring programmes to ensure that the monitoring is satisfactory. Monitoring results submitted to the EPA by Irish Water must be accredited, which means the laboratories analysing the samples must meet certain standards in their analysis methods and quality control and assurance processes.

Irish Water submitted over 124,000 test results for 2018 to the EPA. The EPA refers to these results as the '**annual monitoring returns**'. Each test result gives information on the quality of the drinking water at the point in time at which it was taken. Test results must comply with the standards set out in the Drinking Water Regulations<sup>3</sup>. The samples are tested for a wide range of substances, known as 'parameters'. Three categories of parameters are monitored:

- Microbiological parameters, which include the bacteria *E. coli* and *Enterococci*;
- Chemical parameters; and
- Indicator parameters, which give information on the management of the treatment process, as well as the look, taste and smell of the water.

Compliance with the Drinking Water Regulations is based solely on an assessment of the **annual monitoring returns**.

You can find an explanation of each of the parameters described in the report on the EPA's website<sup>4</sup>.

Since 2017, Irish Water have also been required under the [Radioactive Substances in Drinking Water Regulations](#)<sup>5</sup> to monitor radioactivity parameters in public water supplies. This monitoring is separate from the annual monitoring returns and is part of a six-year surveillance monitoring programme. The EPA's Office of Radiation Protection and Environmental Monitoring carries out this monitoring and provide the results to Irish Water. The EPA will continue to carry out this monitoring until the end of 2022. In 2018, 114 public water supplies were analysed for total indicative dose and 42 public water supplies for radon. No failures were found.

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<sup>3</sup> European Union (Drinking Water) Regulations 2014, S.I. No. 122 of 2014, as amended

<sup>4</sup> <http://www.epa.ie/pubs/advice/drinkingwater/parameterappendix.html>

<sup>5</sup> European Union (Radioactive Substances in Drinking Water) Regulations 2016, S.I. 160 of 2016

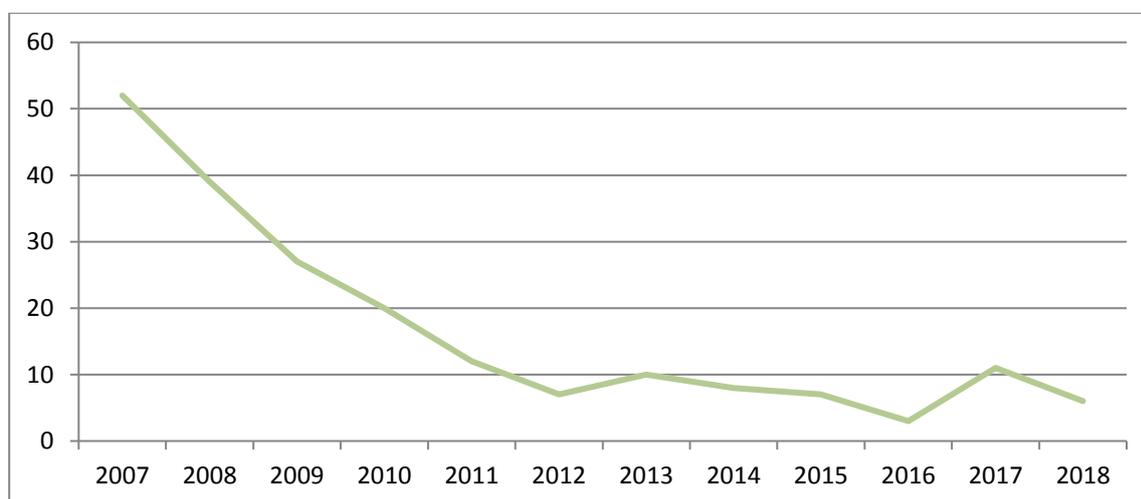
## Water quality in 2018

Water quality across each of the three parameter categories has remained consistent since Irish Water became responsible for public water supplies in 2014 (Table 2).

**Table 2: Overall compliance of samples taken for public water supplies**

Parameter Categories	2014	2015	2016	2017	2018
Microbiological parameters	99.90%	99.92%	99.94%	99.88%	99.87%
Chemical parameters	99.44%	99.39%	99.47%	99.55%	99.63%
Indicator parameters	99.25%	99.05%	98.82%	98.91%	98.79%

Microbiological parameters are the most important health indicators of drinking water quality, particularly *E. coli*. If *E. coli* is found in drinking water, it can mean that the disinfection treatment process is not working properly or that contamination has entered either the water reservoir or distribution pipes, after treatment. During 2018, six samples (in six supplies) failed the standard for *E. coli* in the **annual monitoring returns**. This is a decrease from 2017 when 11 supplies failed the *E. coli* standard. Only one sample failed due to problems with disinfection treatment, the other failures were due to issues such as contamination of taps at the premises where the sample was taken. Since 2007, the overall number of supplies with *E. coli* failures has significantly reduced (Figure 2). However, there was an increase in the number of supplies with *Enterococci* failures, from one in 2017 to six in 2018. This needs to be monitored to ensure that an upward trend does not develop.



**Figure 2: Trend in the number of public water supplies where *E. coli* was detected**

Lead, trihalomethanes and pesticides continue to be the main chemical parameters of concern. Appendix 1 lists the number of samples analysed and the number failing to meet the standards. The EPA's website contains all monitoring results from 2000-2018 and information on water supplies for each county<sup>6</sup>.

<sup>6</sup> <http://erc.epa.ie/safer/resourcelisting.jsp?oID=10206&username=EPA%20Drinking%20Water>

## What happens when there is a water quality failure?

When Irish Water find a microbiological or chemical failure, it must notify the EPA and investigate why the failure happened. As part of the investigation (Figure 3), Irish Water will consult with the HSE, to check if the failure might impact on people's health. The EPA will oversee the investigation to ensure that a satisfactory solution is found, and Irish Water will keep the EPA informed throughout. The actions taken by the EPA are described further in Section 3 of this report.



**Figure 3: What happens when there is a water quality failure**

### ***Irish Water consult with HSE***

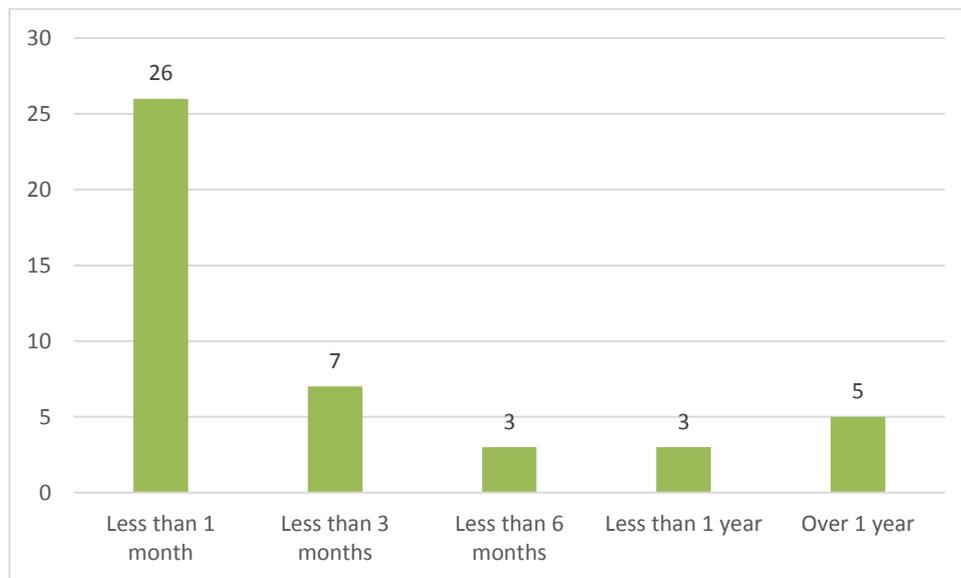
Irish Water consult with the HSE early in the investigation and the HSE advise if the water quality failure could impact on people's health. The HSE may advise Irish Water to issue a boil water notice and/or water restriction notice on a supply, if it is thought that drinking or using the water might endanger people's health. If this is the case, Irish Water must inform consumers as quickly as possible. When the cause of the failure is fixed, Irish Water consult the HSE again and the notice is removed, letting the public know that the water is safe to drink or use again. Notices can apply to all or part of a supply and how long they last will depend on how long it takes to fix the problem. Sometimes Irish Water will issue a 'precautionary' notice even when no water quality failure has been found, if they are concerned that a problem in the supply *might* cause a failure.

### ***Boil water notices***

**During 2018**, 44 boil notices were in place in 14 counties affecting 97,204 people. This is an increase compared to 2017, during which 42 boil notices were in place affecting 21,657 people. The main reason for the increase in the number of people affected is that 65,000 people were on a boil notice for three days in January/February 2018 when a disinfection failure occurred at the Vartry Reservoir supply. Also, over 13,500 people were affected by 12 precautionary boil notices issued due to Storm Emma in March 2018. This increase also shows that even with high levels of compliance for microbiological parameters, we can see issues arise that result in the need to put in place a boil water notice.

**At the end of 2018**, 10 boil notices were in place affecting 897 people. This is an increase from the seven boil notices affecting 41 people at the end of 2017. The increase is mostly due to boil notices in the Dun Laoghaire-Rathdown Zone 4 (Glencullen) (466 people affected) and Kilconnell, Galway (246 people affected) supplies. The EPA monitors the progress Irish Water make to fix the problems at supplies with boil notices.

In the introduction to this report, we stated that one of the main priorities is to keep water free of harmful bacteria, and the action linked to this was to prevent long-term boil notices. A long-term boil notice is one that is in place on a supply for longer than 30 days. Of the 44 boil notices in place during 2018, nearly two-thirds (26 notices) were short-term notices and were lifted within one month. Five were long-term notices that were in place for longer than one year (see Figure 4).



**Figure 4: Number of boil notices in place during 2018 and how long the boil notice was in place**

### **Water restrictions**

A water restriction generally means that people are advised not to use the water for drinking and are advised to use bottled water instead. **During 2018**, 15 water restriction notices were in place in nine counties affecting 14,613 people. This is an increase from four water restrictions affecting 233 people during 2017. **At the end of 2018**, three water restriction notices were in place affecting 487 people. Two main causes of water restrictions in 2018 were contamination of the source (for example, nitrate contamination at Kiltegan, Co. Wicklow) and problems with chlorine dosing (for example, at Dunboyne, Co. Meath). These incidents show the importance of protecting the water source and maintaining control of operating equipment.

A summary of all boil notices and water restrictions in place and lifted in 2018 is provided in Appendix 2.

## Irish Water notify the EPA

Irish Water must notify the EPA as soon as a microbiological or chemical water quality failure is found when they are carrying out the monitoring for the ‘**annual monitoring returns**’. In addition to the annual monitoring returns, Irish Water also carry out ‘**operational monitoring**’ to make sure a treatment plant is operating correctly, and ‘**investigative monitoring**’ when investigating a problem or complaint. This monitoring is **not** part of the annual monitoring returns. This can mean that more failures can be notified to the EPA than are reported in the annual monitoring returns.

The important points to note are that:

- Compliance with the Drinking Water Regulations is based on an assessment of the **annual monitoring returns only**; and
- If a failure is found during additional operational or investigative monitoring, it must also be notified to the EPA and investigated by Irish Water.

During 2018, Irish Water notified the EPA of 811 individual drinking water quality failures, down from 878 in 2017. Table 3 shows the number of public supplies where failures to meet the microbiological or chemical standards were notified to the EPA in 2018, and which parameters failed.

**Table 3: Number of public water supplies where failures to meet the microbiological or chemical standards were notified to the EPA in 2018**

Parameter	No. of supplies with failures in the 2018 annual monitoring returns	No. of supplies with additional operational or investigative failures in 2018	Total number of supplies with failures in 2018
<i>E. coli</i>	6	6	12
<i>Enterococci</i>	6	4	10
Arsenic	0	1	1
Copper	4	2	6
Fluoride <sup>7</sup>	16	0	1
Lead	Not notified individually, see Section 4 for more details		
Nickel	0	2	2
Nitrate	0	3	3
Nitrite (at tap)	1	1	2
PAH	1	0	1
Pesticides (individual)	12	22	34
Pesticides (Total)	0	1	1
Selenium	1	0	1
Trihalomethanes (Total)	35	19	54

<sup>7</sup> For fluoride, one-off failures do not need to be notified to the EPA if the water supply is fluoridated, unless the failures are persistent. They do need to be reported as part of the annual monitoring returns. This is why the number of failures reported in the annual monitoring returns is higher than the number of failures reported.

Irish Water reported no failures for the following chemical parameters: 1,2-dichloroethane, antimony, benzene, benzo(a)pyrene, boron, bromate, cadmium, chromium, cyanide, mercury, tetrachloroethene and trichloroethene.

Here is an example of how the total number of supplies with failures reported to the EPA is calculated: During 2018 Irish Water found *E. coli* failures in **six** supplies when they were carrying out monitoring for the annual monitoring returns. Irish Water also carried out operational monitoring and investigative monitoring in 2018 and found *E. coli* failures at **six** additional supplies during this monitoring. All failures had to be reported to the EPA and in total Irish Water reported *E. coli* failures at **12** supplies (six plus six) to the EPA in 2018.

### ***Cryptosporidium* failures**

***Cryptosporidium*** is a parasite that is found in human or animal waste and, if it is present in drinking water, can cause persistent diarrhoea. The Drinking Water Regulations do not explicitly require *Cryptosporidium* monitoring to be carried out. However, because of the risk to health from *Cryptosporidium*, the EPA has produced guidance on [Cryptosporidium monitoring](#)<sup>8</sup> and has asked Irish Water to submit *Cryptosporidium* results. If *Cryptosporidium* might be present in a supply, then appropriate treatment processes (referred to as a ‘barrier’) must be put in place.

In 2018, Irish Water reported detecting *Cryptosporidium* in 25 public water supplies. This is an increase from 17 supplies in 2017 and 12 in 2016, which is a cause for concern. The main reasons for the detection of *Cryptosporidium* in these 25 supplies are:

- In eight supplies, the treatment processes or infrastructure were not good enough to treat *Cryptosporidium* effectively.
- In seven supplies, there were no treatment processes in place at all at the water treatment plant to treat *Cryptosporidium*.
- In three supplies, there was an appropriate barrier to *Cryptosporidium* at the water treatment plant, but operational issues resulted in the failure to remove *Cryptosporidium*.

When *Cryptosporidium* detections are reported to the EPA, we ensure Irish Water carry out investigations into the cause; take corrective action; and consult with the Health Service Executive regarding the risk to public health. We may also carry out audits of treatment plants to see if further action is necessary. The EPA is particularly concerned that the public continues to be put at risk by inadequate treatment resulting in *Cryptosporidium* being present in water supplies.

Adequate treatment is required at all water supplies where *Cryptosporidium* has been identified as a risk. It is not enough to have a barrier in place, it must also be properly operated and maintained. At the end of 2018, the EPA’s Remedial Action List (RAL) included 15 supplies with inadequate treatment for *Cryptosporidium*. The EPA will continue to monitor Irish Water’s progress towards ensuring that all supplies have an adequate barrier to *Cryptosporidium*.

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<sup>8</sup> Available at <http://www.epa.ie/pubs/advice/drinkingwater/epadrinkingwateradvicenote-advicenoten9.html>

### 3 Water quality investigations and enforcement actions

The EPA is the drinking water quality regulator for public water supplies and works to ensure that drinking water supplied by Irish Water meets the standards of the Drinking Water Regulations. Irish Water must notify the EPA of any water quality failures and the EPA then oversees Irish Water's investigation and solution or 'remedial action' in response to the failure. As part of the EPA's role in water quality investigations, we may take any, or all, of the following actions:

- Audit drinking water supplies;
- Issue legal Directions;
- Take legal Prosecutions;
- Put a supply on the EPA Remedial Action List.

#### Audits

During 2018, the EPA carried out 58 audits of public water supplies across 20 local authority areas (Appendix 3). These were a mixture of 33 scheduled audits and 25 reactive audits. Reactive audits are carried out to follow up on water quality failures as they happen. Scheduled audits are mainly used to check that remedial actions have been carried out, or as spot checks on supplies that have not had any water quality failures. The EPA also carried out three audits of Irish Water's monitoring programmes in three counties. The EPA issues audit reports to Irish Water and publishes them on the [EPA website](#)<sup>9</sup>. During an audit, the inspector may look at some or all the following aspects of a supply: protection of the water source; treatment capacity; treatment process; storage; distribution network. The main compliance issues identified during audits are outlined in Table 4.

**Table 4: Summary of the main compliance issues identified during audits**

EPA audit findings			
16 supplies did not meet the minimum disinfection standards set by the EPA <sup>10</sup>	13 supplies had inadequate source protection	6 supplies had problems with how the filters worked	2 supplies did not have a turbidity monitor on each filter

Poor source protection measures can lead to the contamination of the source water. Supplies with inadequate source protection that do not have a treatment barrier are at risk of having *Cryptosporidium* in the supply. Poor operation of filters and high turbidity in water after the filters means that if *Cryptosporidium* is present in the source water, it is also likely to be in the treated water and may pose a risk to human health.

<sup>9</sup> Available at <http://www.epa.ie/water/dw/dwaudits/>

<sup>10</sup> Available at <http://www.epa.ie/pubs/advice/drinkingwater/epadrinkingwateradvisenoteadvisenoteno3.html>

## Reactive audits

Several incidents occurred at drinking water treatment plants in 2018 which resulted in either boil water notices or water restrictions being issued to consumers. The most significant cases were at:

- Vartry Reservoir (failure of the disinfection system);
- Kiltegan and Ballyragget (nitrate contamination);
- Dunboyne and Shercock (chlorine dosing incidents);
- Fethard (hydrocarbon contamination); and
- Rathkeale (contamination of spring source).

The EPA carried out audits in response to these incidents and found problems with the control and management of treatment processes. A common problem is the failure to set appropriate alarms to alert plant operators to a process malfunction, and ensure that once an alarm is triggered, there is an appropriate response to deal with the issue, especially outside of normal working hours. The EPA made recommendations in the audit reports and followed up with Irish Water to ensure that corrective actions were taken in those cases. Measures were put in place, such as installing continuous monitors with a dial-out alarm to ensure that an immediate response can be made in the event of a malfunction, to prevent similar incidents occurring in future.

## Directions

The EPA may issue a Direction to Irish Water under the Drinking Water Regulations where there is a risk to human health or where remedial action is required. A Direction is a legally binding instruction to Irish Water to fix a water quality issue. Examples of cases where the EPA has issued Directions include the following:

- There is no chlorine monitor or alarm in place.
- There have been persistent water quality failures and Irish Water have not acted or not acted quickly enough to improve water quality.
- Irish Water have not provided information to the EPA when asked for it.

The EPA issued six legally binding Directions to Irish Water during 2018. We also monitored progress on Directions issued prior to 2018. Appendix 4 gives a summary of these directions.

## Prosecutions

The EPA may take a prosecution against Irish Water where we consider that a Direction has not been complied with. In April 2018, the EPA took prosecutions against Irish Water for failure to complete upgrade works for six supplies in Donegal<sup>11</sup>. The EPA had issued Directions to Irish Water because of persistent trihalomethane failures in these supplies. Irish Water pleaded guilty to two summonses, relating to Fintown and Greencastle, with the evidence in relation to all six supplies being outlined to the Court to be taken into consideration. Irish Water was convicted in relation to the summonses for Fintown and Greencastle and total fines of €6,000 were imposed. Agency costs were also awarded.

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<sup>11</sup> The six Donegal supplies were: Cashilard, Gortahork-Falcarragh, Fintown, Greencastle, Portnoo Nairn and Rathmullan.

## Remedial Action List

The Remedial Action List (RAL), first prepared by the EPA in 2008, is a list of public water supplies in need of significant corrective action, usually at the treatment plant. Public water supplies are added to the list for one or more of the following reasons:

- Persistent failure to comply with the standards for priority parameters, that is, *E. coli*, trihalomethanes, pesticides, aluminium or turbidity.
- Inadequate treatment, for example, where there is no treatment other than chlorination for a surface water supply.
- Monitoring results or compliance checks by the EPA indicate a lack of operational control at the supply's treatment plant.
- The Health Service Executive identify a supply where improvements are required.

The EPA has identified the preparation and completion of action programmes for listed supplies as one of the priority actions required to protect our drinking water. The EPA updates the RAL every three months. When Irish Water have shown that the issue has been fixed, a supply can be removed from the Remedial Action List.

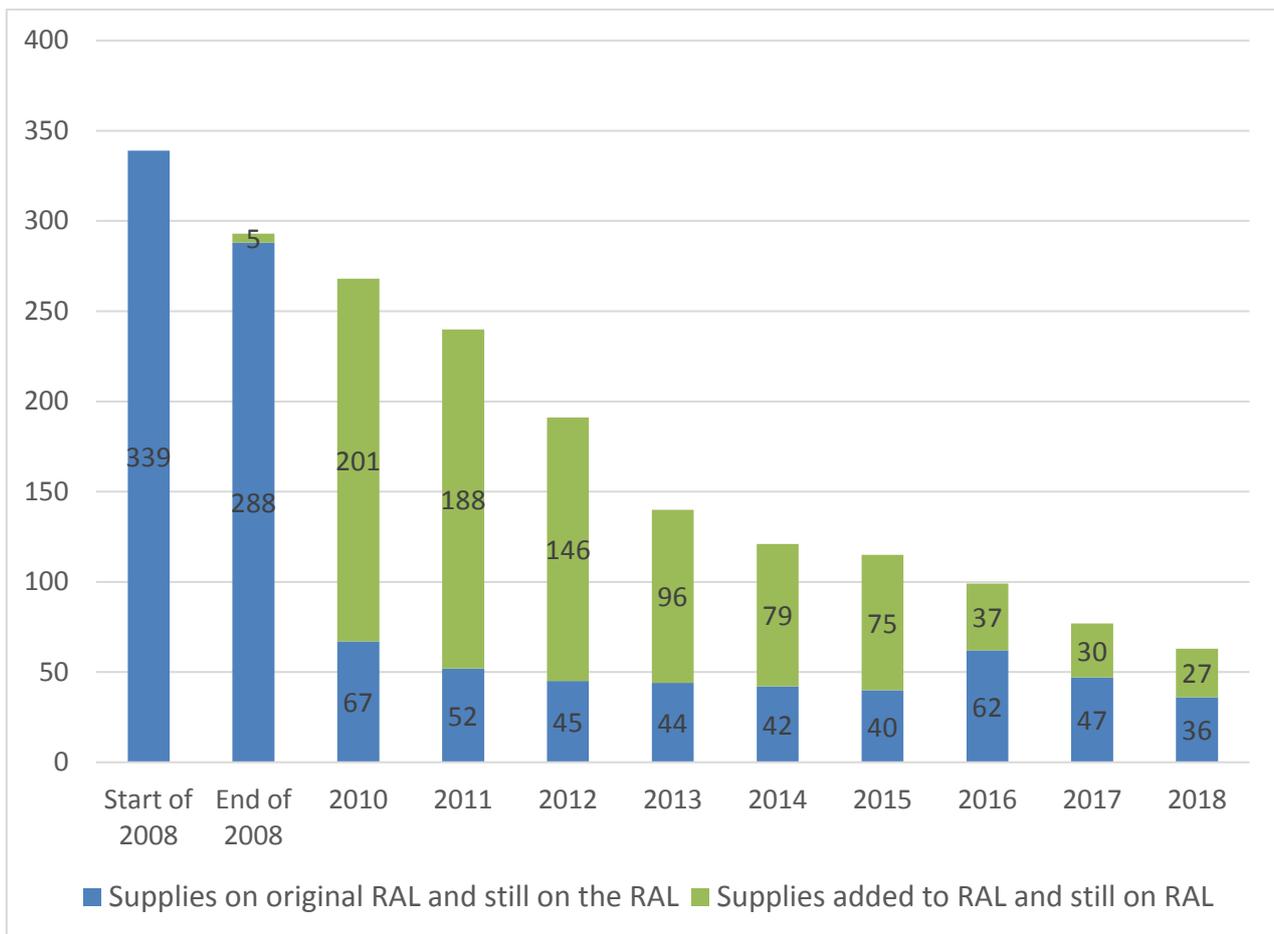
## Remedial Action Progress

The first Remedial Action List in 2008 identified 339 public water supplies (representing 36% of public water supplies at that time) that required remedial action. The number of supplies on the list is steadily decreasing every year. The situation at the end of 2018 is summarised as follows:

- 63 supplies supplying water to 555,689 consumers, were on the RAL at the end of 2018, (Figure 5 & Table 5).
- Eight supplies supplying water to 66,621 people, were added to the list in 2018. These supplies were added for persistent pesticide problems, inadequate treatment for *Cryptosporidium*, failure to meet the trihalomethane standard and persistent nitrate problems.
- 22 supplies serving 166,021 people had remedial works completed in 2018 and were removed from the RAL.
- 303 (89%) of the original 339 supplies had been removed from the Remedial Action List by the end of 2018 (Figure 5).
- Over the period 2008 to 2018, 158 supplies were added to the original list. Of these, 131 had been removed, and 27 remained on the list at the end of 2018.

**Table 5: The reasons why supplies were on the Remedial Action List at the end of 2018.**

Reasons why supplies were on the RAL at the end of 2018			
15 for microbiological issues ( <i>E. coli</i> or <i>Cryptosporidium</i> )	49 for chemical issues (trihalomethanes or pesticides)	4 for indicator issues (aluminium or turbidity)	13 for other reasons (such as management issues at the plant)
Some supplies are on the <b>Remedial Action List</b> for more than one reason.			

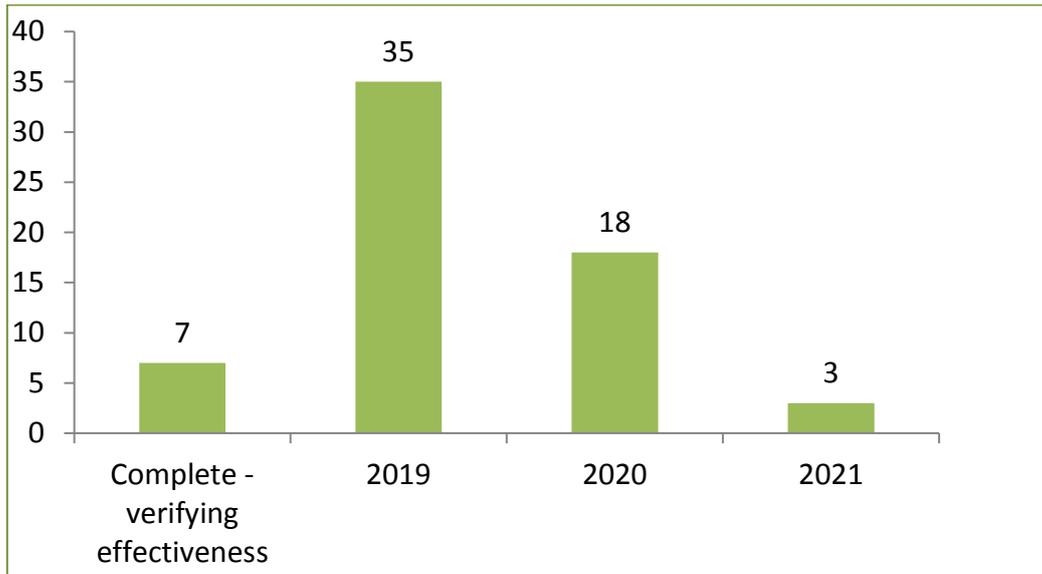


**Figure 5: Number of supplies on the Remedial Action List at the end of each year**

Irish Water provided completion dates for all but two RAL supplies by the end of 2018. One supply (Mullingar) without a completion date was added to the RAL at the end of 2018 but a completion date was provided by Irish Water in early 2019. The other supply, Lough Talt in County Sligo, has been confirmed as having a completion date of December 2020, following the conclusion of the planning process in June 2019.

Three supplies have completion dates in 2021. For Clonroche, Co. Wexford, there is a Direction deadline for pesticides compliance (see Section 4 of this report for more information). Two more supplies, Aughrim/Annacurra, Co. Wicklow and Kilkenny City (Radestown) were both due to have works completed by the end of 2020. In both cases, the remedial action involves replacing the water supply by connecting to an alternative source, and Irish Water have experienced delays in the design and planning process.

Figure 6 shows the expected completion progress for the supplies which were on the RAL at the end of 2018. Appendix 5 gives a breakdown of the supplies on the Remedial Action List in each county along with anticipated completion dates provided by Irish Water in December 2018.



**Figure 6: Completion dates provided by Irish Water for supplies on RAL in December 2018**

Irish Water submit progress reports to the EPA every three months and the EPA publishes a Remedial Action List update on the EPA website<sup>12</sup>.

<sup>12</sup> <http://www.epa.ie/pubs/reports/water/drinking/>.

## 4 Preventing water quality failures from happening

The EPA's primary focus is on overseeing Irish Water's actions following water quality failures, but we also want Irish Water to take actions to prevent water quality failures from happening in the first place.

The EPA has identified priority issues affecting drinking water quality; and has recommended that Irish Water take a strategic national approach to these issues with the aim of preventing water quality failures. Irish Water, as a national utility, can implement programmes to take consistent action on these issues on a national level. The priority issues for drinking water are:

- Disinfection
- Disinfection by-products (Trihalomethanes)
- Lead
- Pesticides
- Drinking Water Safety Plans

## Disinfection

Disinfection is the most important step of the water treatment process. It makes our water supplies safe from bacteria and parasites such as *E. coli* and *Cryptosporidium*, which can cause illness. The number of supplies with *E. coli* failures reported to the EPA in 2018 decreased to 12 supplies, compared with 20 in 2017. The 12 supplies consist of six supplies with failures under the ‘**annual monitoring returns**’ and six supplies with failures under ‘**operational monitoring**’ or ‘**investigative monitoring**’. Irish Water reported that disinfection was not working correctly at four of the 12 supplies with *E. coli* failures in 2018, a decrease from seven in 2017. In addition, Irish Water reported detecting *Cryptosporidium* in 25 public water supplies. This is an increase from 17 supplies in 2017 and 12 in 2016, which is a cause for concern.

It is very important that Irish Water continue to undertake improvements to disinfection systems across the country to ensure that the quality of drinking water is safeguarded.

In 2016, Irish Water prepared a National Disinfection Strategy to address deficiencies in the disinfection of public water supplies. The Strategy outlines the standard specifications for disinfection systems that should be in place in all sites, that is, at water treatment plants or other locations such as chlorine booster stations. The Strategy is accompanied by a [National Disinfection Programme](#)<sup>13</sup>. The Programme is split over two phases:

- Phase 1 - Site Assessment

Irish Water assess the condition and performance of the existing disinfection systems at sites across the country. This determines the improvements needed to ensure that the site disinfection process meets the requirements.

- Phase 2 – Site Upgrade Works

Irish Water carry out the necessary improvements identified in Phase 1 to areas such as chemical storage and dosing, ultraviolet (UV) disinfection systems (Figure 7), monitoring and alarm systems.

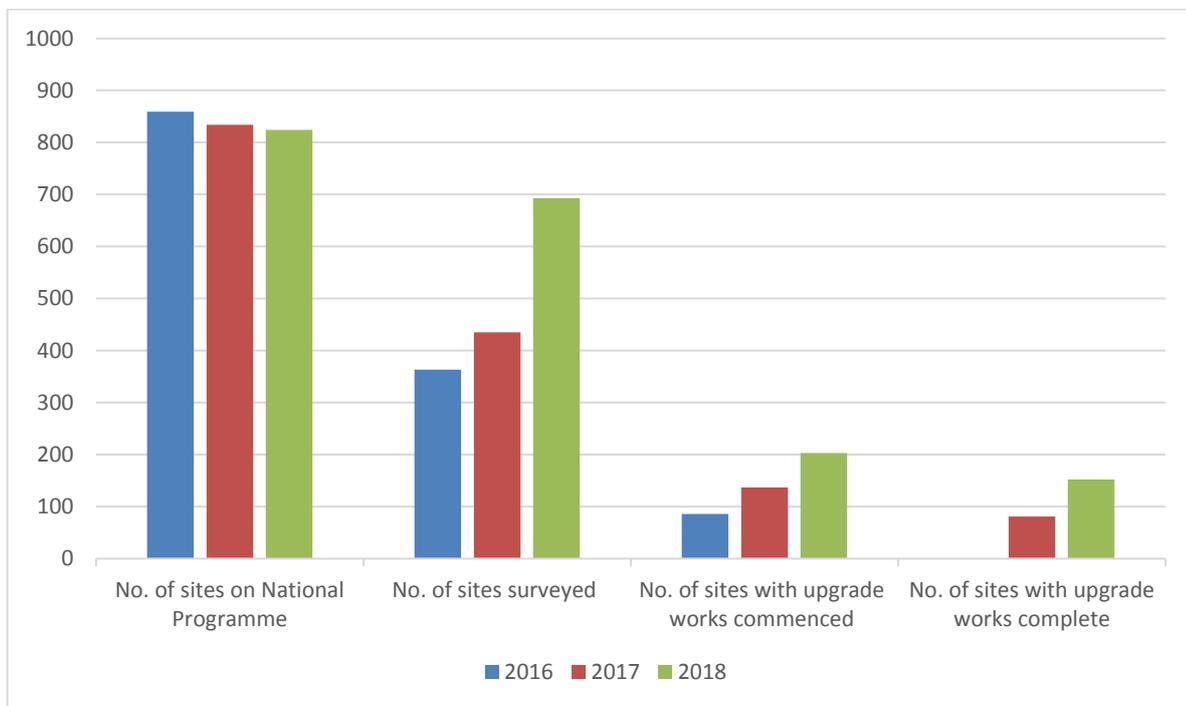


**Figure 7: UV disinfection system**

<sup>13</sup> Available at <https://www.water.ie/projects-plans/national-projects/national-disinfection-programme/>

Irish Water provide updates to the EPA every three months on progress with the implementation of the National Disinfection Programme. During 2018, site assessments were concentrated in counties: Clare, Kerry, Donegal, Kildare, Longford, Dun Laoghaire-Rathdown, Wexford, Wicklow, Waterford, Mayo and Sligo. The upgrade works were concentrated in these counties also. The remaining sites requiring assessments are concentrated in counties: Cork, Tipperary, Fingal, Laois, Offaly and Meath.

At the end of 2018, Irish Water had assessed 693 individual sites and upgrade works had commenced at 203 sites. Upgrade works were complete at 152 sites. There is a total of 824 sites in the programme. Irish Water have stated that the National Disinfection Programme will continue during 2019. The current programme is scheduled for completion by the end of June 2020, which is one year later than previously planned. This delay is due to several factors including an increase in the scope of works onsite, contractor delays, lead-in times for essential equipment, and the impact of the summer drought. Figure 8 shows the progress of this programme to date. The EPA will continue to monitor Irish Water’s progress in delivering this programme.

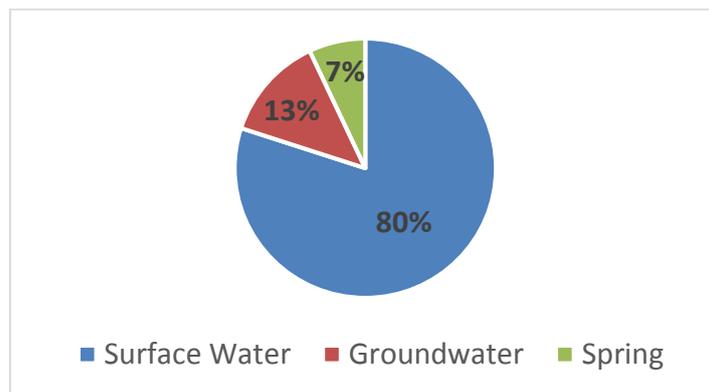


**Figure 8: Progress made at sites under the National Disinfection Programme by the end of 2016, 2017 and 2018.**

### Disinfection by-products (trihalomethanes)

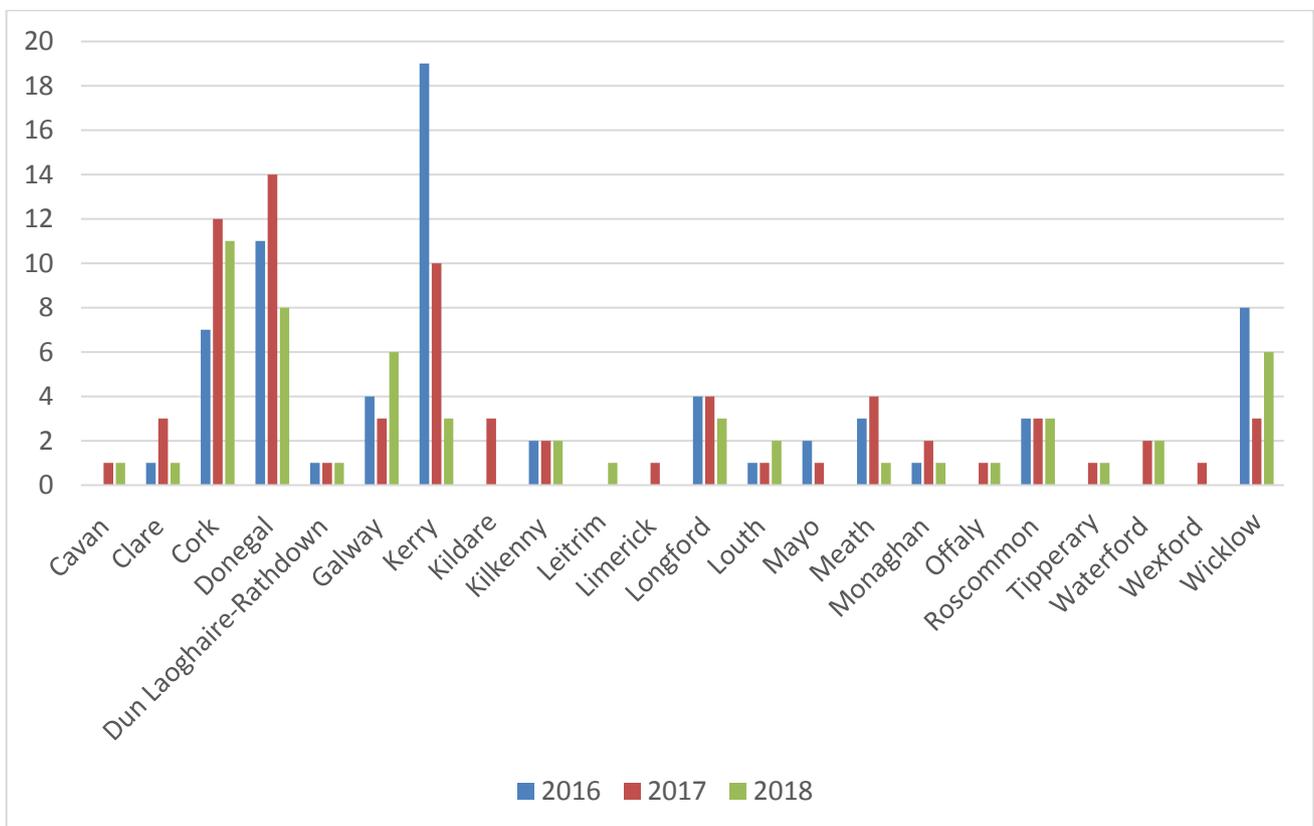
Trihalomethanes (THMs) form when natural organic matter in the water source, such as rotting vegetation, reacts with chlorine used in the disinfection treatment process. The standard for THMs in drinking water is 100 µg/l. The challenge for Irish Water is to minimise the amount of THMs in drinking water, while still ensuring that disinfection is effective.

This is a problem in Ireland because we get most of our drinking water from surface water (see Figure 9), that is rivers and lakes, which have more natural organic matter than in groundwater.



**Figure 9: Breakdown of drinking water sources in Ireland**

During 2018, Irish Water notified the EPA of 54 supplies across 18 counties that failed the standard for THMs at one or more times during the year. This compares to 90 supplies in 2016 and 73 supplies in 2017, with the number of supplies affected steadily decreasing (see Figure 10).



**Figure 10: Number of notified THM failures in public water supplies, by local authority, in 2018**

At the end of 2018, 42 supplies serving 309,884 people were on the EPA Remedial Action List for persistent THM issues. This compares to 52 supplies serving 392,209 people at the end of 2017.

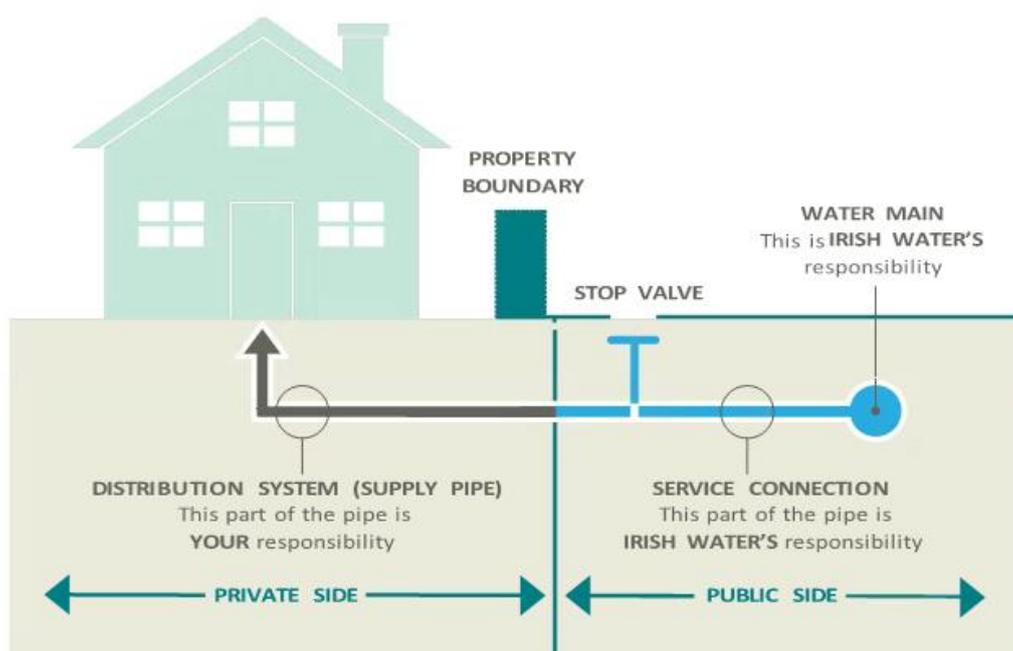
Irish Water have developed action plans for all supplies with THM issues on the RAL and submit progress reports to the EPA every three months. The action plans outline any measures or treatment process upgrades that Irish Water are putting in place to achieve compliance with the THMs standard, without compromising disinfection. Irish Water have indicated that all THM action plans will be completed in all supplies by 2021. Aughrim/Annacurra, Co. Wicklow and Kilkenny City (Radestown) were both due to have works completed by the end of 2020. In both cases, the remedial action involves replacing the water supply by connecting to an alternative source, and Irish Water have experienced delays in the design and planning process.

The European Commission started infringement proceedings against Ireland in 2015 (reference 7554/2015/ENVI) due to the number of water supplies failing to meet the THMs standard. In July 2018, the European Commission issued a letter of formal notice which stated that Ireland has failed to fulfil its obligations under the Drinking Water Directive with respect to 73 public water supplies and 24 private group water schemes with THMs failures. The Department of Housing, Planning and Local Government co-ordinates Ireland's response to the European Commission. They responded to the letter of formal notice in October 2018; and provided an update on the progress being made to improve THM compliance in Ireland. The European Commission will consider this information in making their decision on the infringement proceedings.

## Lead

Lead is found in drinking water when it dissolves from lead pipework, mains connections and plumbing fittings. The standard for lead in drinking water is 10 µg/l. Lead is very harmful to the development of the nervous system and can cause long-term health damage.

The Irish Government published a [National Lead Strategy](#)<sup>14</sup> in June 2015. The strategy reflects the fact that lead in drinking water is both the responsibility of water suppliers and property owners (see Figure 11). Irish Water, as the water supplier for public water supplies, are responsible for lead pipework in the water distribution network. This is known as public-side lead. Property owners are responsible for lead plumbing in their buildings and inside their property boundary. This is known as private-side lead. The strategy sets out actions to reduce people's exposure to lead from drinking water, and these actions are reported on by the Department of Housing, Planning and Local Government.



**Figure 11: Responsibility for water distribution systems**

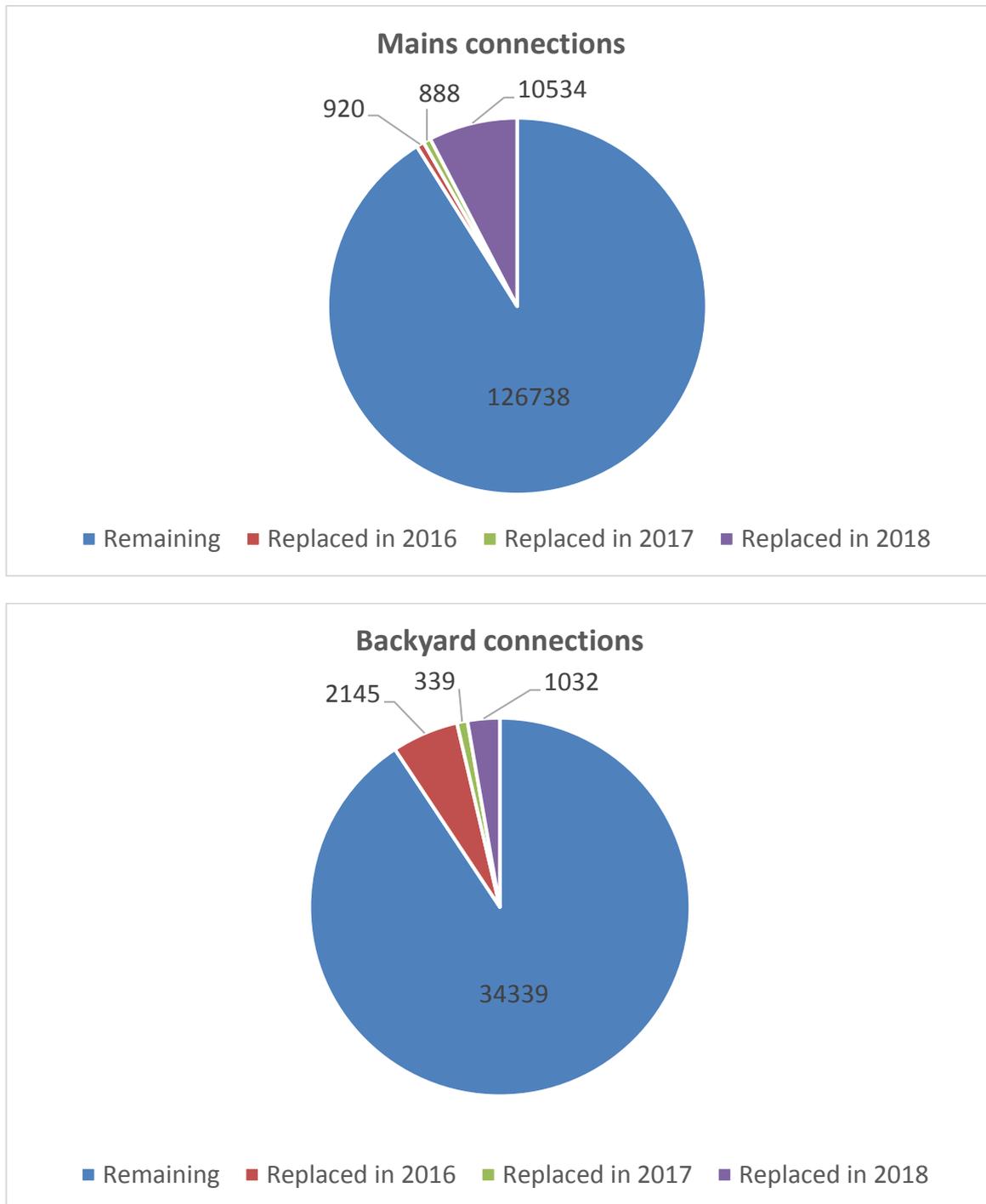
In May 2017, after public consultation, Irish Water published its [Lead in Drinking Water Mitigation Plan](#)<sup>15</sup> which sets out what Irish Water are going to do to reduce public-side lead. The goal of both the National Strategy and the Mitigation Plan is the removal of all lead pipework. Irish Water estimate that there are 180,000 lead service connections of which:

- 140,000 are service connections from water mains which run under the roads; and
- 40,000 are backyard service connections, where lead pipes run through backyards serving several houses.

<sup>14</sup>Available at <http://www.housing.gov.ie/sites/default/files/migrated-files/en/Publications/Environment/Water/FileDownload%2C41733%2Cen.pdf>

<sup>15</sup> Available at <https://www.water.ie/projects-plans/national-projects/lead-mitigation-plan/>

Irish Water aims to remove all public-side lead pipework by 2026. It is the responsibility of a property owner to remove any lead pipework within the property. Other actions are being taken to reduce people’s exposure to lead in the meantime. Progress to-date on mains and backyard connection lead pipework replacement can be seen below in Figure 12.



**Figure 12: Number of lead connections replaced in 2016, 2017 and 2018 as a proportion of the total to be replaced**

## ***Main Actions carried out in 2018***

- Irish Water have identified the areas with high levels of lead and are now targeting those areas for action. Possible actions include replacing lead pipework in public ownership or treating the water to prevent lead from dissolving from pipework, using ortho-phosphate.
- Irish Water continued to send information leaflets to customers when lead issues were identified through sampling. This includes advice on actions that can be taken by the property owner to reduce their exposure to lead. Irish Water developed the information leaflets in conjunction with the EPA and the HSE.
- Irish Water continued to carry out works to replace lead pipes and connections. The EPA welcomed the fact that the rate of this replacement work increased significantly during 2018 as low levels of replacements had been of concern during 2016 and 2017.
- There are currently two public water supplies where ortho-phosphate dosing is in place – Clareville, Co. Limerick and Hacketstown, Co. Carlow. Ortho-phosphate coats the inside of the water distribution pipework and reduces the amount of lead that dissolves into the water. However, this can result in higher levels of phosphate in the water, which ends up in wastewater from homes and escapes through leaks in the mains and pipes. It can then have an impact on lakes, rivers or groundwater. Irish Water continued to assess supplies with high levels of lead to see if this method could be used, without creating a risk to the environment. Only those supplies which pass the risk assessment will be considered for ortho-phosphate dosing.

## ***Actions required***

Although a limit of 10ug/l is placed on drinking water supplies, the health advice from the HSE and from the World Health Organisation is that there is no safe level of lead. Even a short length of lead pipework within a house, or plumbing fittings containing lead, may affect the health of people drinking the water. If you have been informed by Irish Water that you have lead in your water, it is extremely important to remove any lead pipes or fittings. Irish Water will remove any public-side lead pipework, but it is the responsibility of a property owner to remove any lead pipework within the property. Home owners can make use of the [Lead Remediation Grant Scheme](#) which is available through local authorities to assist with the costs of replacing lead plumbing.

Where several houses share a backyard connection that contains lead, Irish Water will carry out the work to remove these pipes and replace them with lead-free pipes. Consent to do this work is required from each of the households served, because the pipes pass through their back gardens. In some areas, Irish Water are encountering difficulties getting that consent from all the homeowners. The EPA encourages homeowners to allow such works to take place as removing lead pipework is the best way to protect you and your family from the health risks associated with lead.

The Department of Housing Planning and Local Government oversees the progress of the [National Lead Strategy](#). This strategy is focussed on the many public buildings such as schools and hospitals, and State-owned buildings such as local authority housing that may have lead pipework. The full extent of this is still unknown and there are no reported plans to carry out replacement works.

## Pesticides

The term 'Pesticides' includes a wide range of products, but in Ireland, it is herbicides that pose the greatest threat to drinking water. The most commonly found pesticide is MCPA<sup>16</sup> which is used for rush control in grassland. Pesticide products should not be present in drinking water and the Drinking Water Regulations set the following limits (Table 6):

**Table 6: Pesticide limits**

Parameter	Standard
Pesticides (individual)	0.100 µg/l
Aldrin, dieldrin, heptachlor, heptachlor epoxide	0.030 µg/l
Pesticides – Total	0.500 µg/l

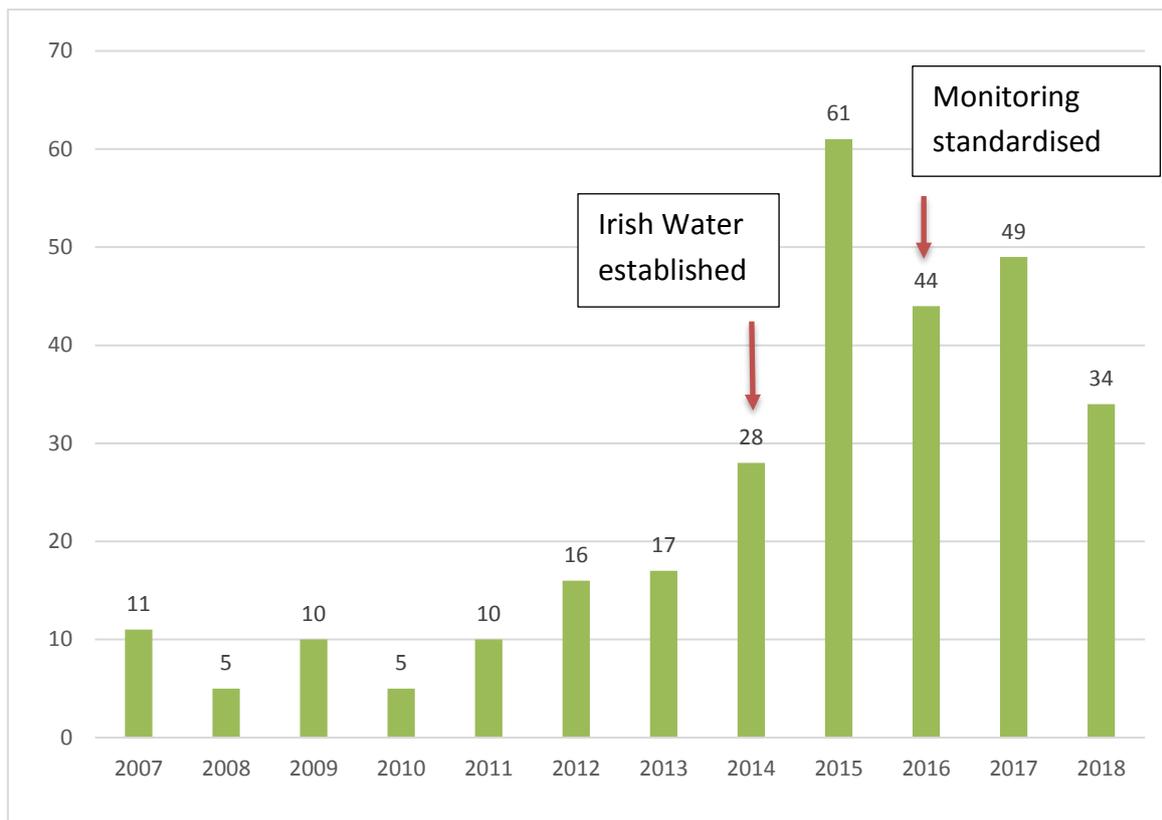
The standards are set considerably below levels which would impact on people's health. It requires great care when using pesticide products in the environment, particularly near drinking water sources, to make sure that water is not contaminated with pesticides.

In 2016, Irish Water began a standardised pesticide monitoring programme for all public supplies. They monitor for 21 pesticides most likely to be found in Irish waters. The programme highlighted an issue of widespread and, in a small number of supplies, persistent failures to meet the pesticide standards.

The following is a summary of the findings:

- At the end of 2018, the EPA was investigating 42 supplies serving almost 283,500 people, due to failures to meet the pesticide standard. This is down from 53 supplies affecting 660,000 people at the end of 2017.
- 75% of all failures detected were of the herbicide MCPA.
- Of the 42 supplies being investigated by the EPA, 34 supplies had failures during 2018 (see Figure 13). The remaining eight supplies had failures during 2017 but none in 2018. However, not enough samples were taken in 2018 to confirm that the issue was resolved.
- Persistent failures were identified in three of the 42 supplies during 2018. The three supplies were Cavan Rural Water Supply Scheme and Belturbet, Co. Cavan, and Clonroche, Co. Wexford. Four other supplies with persistent failures were under investigation from 2017, bringing the total to seven. These supplies are all subject to increased monitoring.
- Irish Water are also carrying out increased sampling in the remaining 35 supplies which were found to have either once-off failures or non-persistent failures in 2017 or 2018. This is to investigate the extent of the pesticide problem or to confirm that the issue is resolved.
- One supply where the pesticides issue was resolved was Fingal Zone 1, which had four pesticides failures in 2017. This supply sources its water from the River Liffey and serves a population of over 254,000.

<sup>16</sup> 2-methyl-4-chlorophenoxyacetic acid



**Figure 13: Number of public water supplies with reported pesticide failures**

### *What happens when a supply is contaminated with pesticides*

A catchment is an area of land around a river, lake or other body of water. Any activities that take place in a catchment have the potential to affect the water quality of the river, lake or other body of water. The reason that we find pesticides in drinking water is because products containing pesticides are being used in a catchment in such a way that the pesticides end up in rivers and lakes. For example, a farmer spraying rushes with MCPA may come too close to a river and some of the spray drifts into the river. Water abstracted from that river is now contaminated with MCPA. Drinking water treatment plants in Ireland are not set up with the technology to remove these pesticides from the water. So, the current approach being taken is to focus on how to prevent behaviours that may result in the contamination of a supply.

A National Pesticide and Drinking Water Action Group set up in 2016 and is now led by the Department of Agriculture, Food and the Marine, meets every three months. The group includes representatives from the EPA, Irish Water, local authorities, the farming community, and pesticide manufacturers and suppliers. The aim of this group is to support actions in catchments where the use of pesticides has contaminated a water supply. This means working together, and with different interest groups, to take steps to respond to the issue of pesticides in drinking water. This includes investigating where the problem might be arising and raising awareness of the importance of responsible use of pesticides.

Irish Water are using a consistent approach of responding to pesticide failures in all parts of the country. This approach involves working with the members of the National Pesticide and Drinking Water Action group and communicating with pesticide users through local media, with the aim of resolving pesticide issues in water supplies.

### ***EPA actions on pesticides in drinking water***

Where pesticides failures are detected, the EPA requires:

- An inspection of the area around the treatment plant or abstraction point for any obvious, nearby source of contamination;
- A programme of sampling to investigate the incident;
- Catchment-based investigations and awareness raising activities, if the problem persists.

In 2017, the EPA started to prioritise supplies for enforcement action, based on persistence. This meant that the EPA started to add supplies with several pesticide failures in the year to the Remedial Action List and also issued Directions to Irish Water. The EPA issued Directions to Irish Water in relation to pesticide failures in three supplies during 2017 and four supplies during 2018 (Table 7).

**Table 7: Supplies with persistent pesticide issues at end of 2018**

County	Supply	Supply placed on the RAL	Date Direction was issued	Direction deadline
Kilkenny	Kilkenny City (Troyswood)	2017	14/11/2017	31/12/2019
Limerick	Abbeyfeale	2017	14/11/2017	31/12/2019
Longford	Longford Central	2017	14/11/2017	31/12/2019
Limerick	Newcastle West	2018	18/06/2018	30/06/2020
Cavan	Cavan Rural Water Supply Scheme	2018	23/11/2018	31/12/2020
Cavan	Belturbet	2018	23/11/2018	31/12/2020
Wexford	Clonroche	2018	21/12/2018	31/01/2021

The Directions require Irish Water to complete actions by the Direction deadline to ensure there are no further failures of the pesticide standards in these supplies. There is a possibility that catchment activities may not be enough to resolve the pesticide issues at all supplies. The EPA will monitor Irish Water's compliance with the requirements of the Directions.

## Drinking Water Safety Plans

Drinking water should be **safe**. This means it should meet the relevant water quality standards at the tap. But it should also be **secure**, that is, there should be a system in place to identify all the things that could go wrong in a supply and take action to prevent these things from happening.

When something goes wrong in a supply, it can have an impact on the water being supplied to the consumer, for example, it could result in a supply being cut off, or the need for a consumer to boil their water. Drinking Water Safety Plans are a proactive approach to ensuring that a supply is both safe and secure. A Drinking Water Safety Plan identifies:

- all the things that could go wrong (hazards);
- how serious it would be if it did go wrong (severity); and
- how likely it is that it could go wrong (likelihood);

at each step in the water supply process, from the water source to the consumer's tap.

An example of a hazard is where a disinfection dosing pump breaks down. If undisinfected water reaches the consumer's tap and there are bacteria in the water, the severity of the hazard could be high for the consumer as they may get very ill. So, there must be a system in place to maintain the pump to try to avoid a breakdown.

Figure 14 below shows the steps involved in the drinking water supply process.



**Figure 14: Steps in the drinking water supply process**

Once the severity and likelihood of each hazard has been determined, it is possible to calculate the risk. Risks can be low, moderate, high or very high. The next step is to take actions to reduce the risks at each water supply and make the supply as secure as possible.

Irish Water are carrying out assessments of all public water supplies. They assess and calculate the risk of any hazards occurring, using the severity and likelihood information. Irish Water have identified 173 different hazards which need to be assessed at each public water supply.

Table 8 provides information on the number of Drinking Water Safety Plan risk assessments that have been carried out by Irish Water in the last four years.

**Table 8: Drinking Water Safety Plan hazard assessments complete**

Assessments	2018	Total	Target
No. of hazards assessed	3,140	36,151	140,000
No. of public water supplies partially assessed	63	508	788

### **Case Study: Kerry Central Regional Water Supply Scheme**

The Kerry Central Regional Water Supply Scheme is located on the outskirts of Killarney, on the banks of Lough Guitane. This supply provides water to around 60,000 people in Tralee, Killarney, Castleisland, Castlemaine, and an extensive rural area in County Kerry. The supply was on the EPA's original Remedial Action List (RAL), from 2008. The supply was put on the List because of persistent problems with trihalomethanes in the water and inadequate treatment for *Cryptosporidium*.

An assessment of the hazards at this supply showed that there were 12 high/very high-risk hazards associated with the raw water, and 31 high/very high-risk hazards associated with the treatment plant (Table 9). Irish Water took steps to reduce the risks at this supply through a combination of operational improvements and capital works such as the upgrade of the Water Treatment Plant at Lough Guitane. A new water treatment plant (shown on the cover of this report) was constructed in 2018 to provide robust treatment facilities to ensure that a consistent supply of high-quality water is provided to the Kerry Central region.

**Table 9: Risk reduction at Lough Guitane**

	Raw water	Treatment
No. of high/very high risks before works	12	31
No. of high/very high risks reduced	10	29
<b>No. of high/very high risks after works</b>	<b>2</b>	<b>2</b>

The works at the treatment plant addressed all the high/very high treatment risks within Irish Water’s control; the remaining risks are due to the possibility of severe weather events. The remaining risks associated with raw water are due to the variability of the raw water quality and the potential impact of agricultural activities. Such risks need to be dealt with by engagement with stakeholders whose activities can have an impact on the water quality.

### Extreme Weather Events in 2018

During 2018, Ireland experienced extreme weather events which impacted on public water supplies and the delivery of water to consumers. In March 2018, Storm Emma resulted in large amounts of snow and extremely cold weather conditions. Schools, offices, shops and most public services were closed for several days, with people having difficulty leaving their homes to travel even short distances. Many water treatment plants were inaccessible. This meant that Irish Water could not respond to operational alarms and issues when they occurred. This particularly affected smaller supplies and, for example, in Waterford nine supplies had to be put on boil notices as a precaution.

Many people were also affected by water restrictions or had no water at all. Other supplies were at risk of having water cut off or restricted. Figure 15 shows the population whose water supply was affected by Storm Emma.

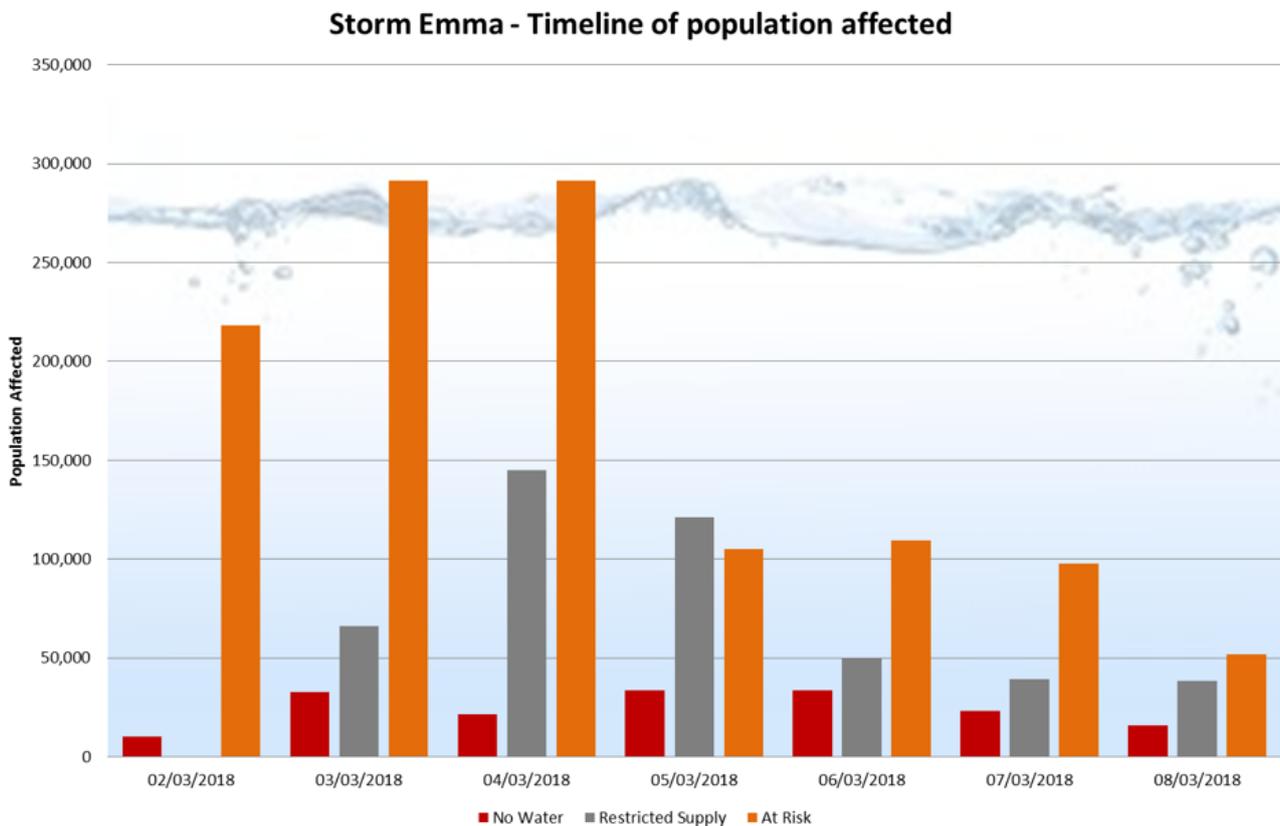
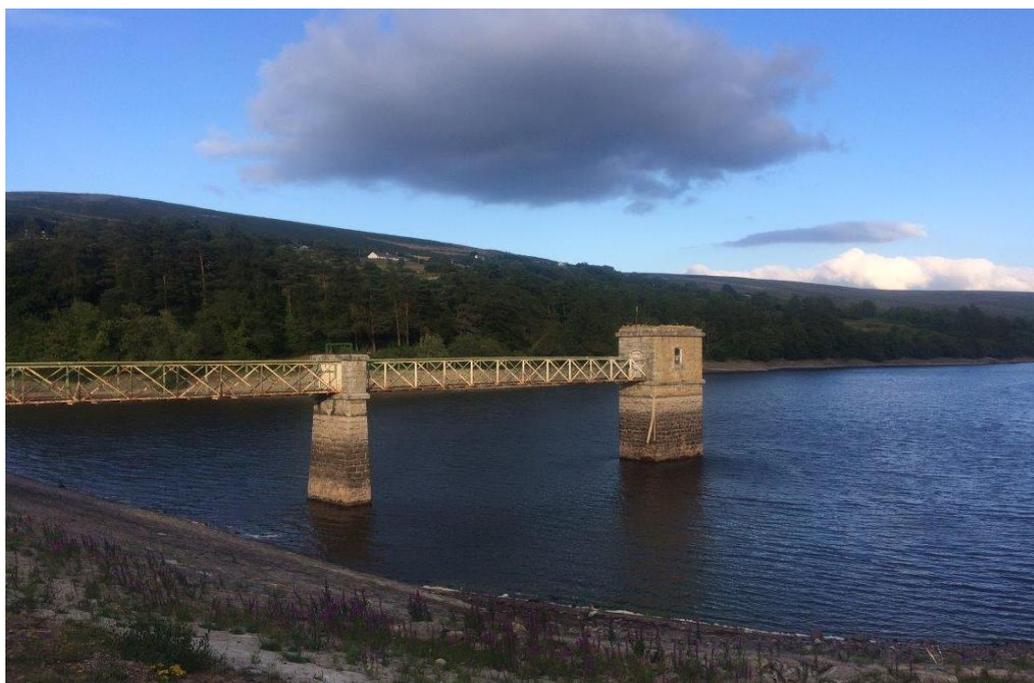


Figure 15: Storm Emma timeline of population affected (graphic provided by Irish Water)

The summer of 2018 posed other challenges for drinking water supplies. High temperatures and no rainfall in June and July meant that Ireland experienced drought conditions (Figure 16 shows Bohernabreena Reservoir at a very low level in July 2018). This, coupled with increased demand for water during that time, meant that Irish Water had to introduce the first ever National Water Conservation Order (nationwide hosepipe ban) in July. The order remained in place until September 2018. Water demand and supply levels were monitored daily by Irish Water to ensure that water supplies were maintained for consumers, farmers, businesses and other services.



**Figure 16: Bohernabreena Reservoir during drought conditions in July 2018**

The challenges posed by these climate extremes in 2018 demonstrates the need to have resilient water supplies that can cope with short-term events such as the snow during Storm Emma, or longer-term events during a summer of drought conditions. Drinking Water Safety Plans play an essential role as they identify what could go wrong in advance, so that action can be taken to reduce the risk of something going wrong; or lessen the impact if it does go wrong.

By putting Drinking Water Safety Plans in place, Irish Water can make sure that investment is focused on the areas where the risks to the supply are greatest. The EPA will be monitoring Irish Water's progress in carrying out the assessments and ensuring measures are taken to reduce risks at public supplies. The EPA has published guidance to assist Irish Water in developing [Drinking Water Safety Plans](#)<sup>17</sup>.

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<sup>17</sup> Available at <http://www.epa.ie/pubs/advice/drinkingwater/epadinkingwateradvicenote-advicenoteno8.html>

## 5 Priority Actions and Concluding Remarks

### Priority Actions

#### Priority Issue: Ensure all water treatment plants are effective

##### Actions in 2018

The number of supplies on the Remedial Action List at the end of 2018 was 63. This number was 77 at the end of 2017; and continues to reduce each year. All RAL supplies have a date in place for the completion of the remedial works required.

##### Recommended Actions

Continued commitment from Irish Water is required to progress action programmes for supplies on the Remedial Action List to meet their completion dates.

#### Priority Issue: Keep water free of harmful bacteria (Disinfection)

##### Actions in 2018

Irish Water continued to carry out work under the National Disinfection Programme. They have now completed upgrades at 152 sites.

At the end of 2018, 15 public water supplies serving over 108,000 people still did not have adequate treatment for *Cryptosporidium*. All these supplies are on the Remedial Action List. However, *Cryptosporidium* was reported in 25 supplies in 2018, an increase from 12 in 2016 and 17 in 2017. Inadequate treatment and poor practices were found to contribute to some of these detections.

The population affected by boil water notices in 2018 increased significantly from 2017. This was mostly due to a disinfection failure at the Vartry reservoir supply and 12 precautionary notices being put in place during Storm Emma. Almost two thirds of all boil notices in place during 2018 were short-term notices, in place for less than one month.

##### Recommended Actions

Irish Water should continue to upgrade their disinfection systems under the National Disinfection Programme. Where urgent issues are identified, for example where there is no disinfection alarm in place, they should be dealt with immediately. It is crucial that Irish Water ensure that all necessary *Cryptosporidium* barriers are installed, maintained, and operated correctly and effectively.

## Priority Issue: Minimise harmful disinfection by-products (Trihalomethanes)

### Actions in 2018

The number of supplies reporting trihalomethane (THM) failures remains high, with 42 supplies on the Remedial Action List for persistent failures in 2018.

Irish Water have indicated that most action programmes for supplies on the 2018 RAL for THMs will be complete by 2020. The exceptions to this are Aughrim/Annacurra, Co. Wicklow, and Kilkenny City (Radestown), which were due to be completed in 2020 but have been delayed to 2021.

### Recommended Actions

Irish Water should continue to progress the work they are carrying out on supplies on the RAL with THM problems. These works must be carried out within the agreed timeframe.

## Priority Issue: Eliminate lead from our pipes

### Actions in 2018

There is no safe level of lead in drinking water, yet there continues to be a lack of urgency in addressing the removal of lead from our networks and buildings.

In 2018, Irish Water made better progress in the replacement of mains connections, but householders have also been slow to replace lead pipes in their homes or to allow Irish Water to replace backyard connections.

The Department of Housing, Planning and Local Government oversees progress of the [National Lead Strategy](#). Many public buildings such as schools and hospitals, and State-owned buildings such as local authority housing may have lead pipework. The full extent of this is still unknown and there are no reported plans to carry out replacement works. This is placing many vulnerable people at risk.

### Recommended Actions

Householders need to replace private side lead plumbing and to allow the replacement of backyard connections. Greater urgency is required from public bodies to complete the assessment and action plans for removing lead pipework from public buildings such as hospitals and schools, and from local authority housing.

## Priority Issue: Prevent pesticides from entering our waters

### Actions in 2018

The EPA has now placed a further four supplies on the Remedial Action List and issued Directions to Irish Water to address persistent failures to meet the pesticides limit in the Drinking Water Regulations.

The National Pesticide and Drinking Water Action Group, in which Irish Water actively participates, continues to support a catchment-based approach to the reduction of pesticides in drinking water.

### Recommended Actions

The goal with pesticides is to prevent them getting into water in the first place and, to this end, Irish Water should continue to work with other stakeholders in the National Pesticides and Drinking Water Action Group. However, further options, such as treatment, will have to be considered where catchment-based activities prove unsuccessful.

## Priority Issue: Manage risks to our public water supplies

### Actions in 2018

Irish Water have committed to the Drinking Water Safety Plan approach to protecting drinking water supplies; and have continued to carry out hazard assessments during 2018.

Investment in the Kerry Central Regional Water Supply Scheme at Lough Guitane reduced the risks to around 60,000 people in 2018; and resulted in the supply being removed from the Remedial Action list after 10 years.

### Recommended Actions

Extreme weather events in 2018 have highlighted the need to ensure that our supplies are resilient. Irish Water should continue to carry out assessments to establish where risks to supplies are the greatest; and use these assessments to focus investment on reducing the greatest risks to those supplies. This will ensure that water supplies are both safe and secure.

## Concluding Remarks

The quality of the water in our public supplies is very good, and Irish Water is continuing to make improvements to water supplies: in 2018 they completed remedial works at 22 Remedial Action List supplies serving 166,021 people. Irish Water, as a national utility, can take actions on the priority issues on a national level. Continued and sustained investment in Ireland's public water sector will be essential if Irish Water are to complete works to remove all 63 remaining supplies from the Remedial Action List, without further delay.

*E. coli* failures detected under the annual monitoring returns decreased in 2018, but there was an increase in *Enterococci* and *Cryptosporidium* detections. Irish Water's National Disinfection Strategy is addressing deficiencies in disinfection across all public water supplies. It is important that Irish Water continue to make improvements. It is also crucial that Irish Water ensure that all necessary *Cryptosporidium* barriers are installed, maintained, and operated correctly and effectively to protect public health.

Trihalomethanes, lead and pesticides continue to be the most significant issues for chemical compliance in public water supplies. The number of supplies affected by trihalomethanes and pesticides is reducing each year. However, the number of supplies with persistent pesticide failures increased in 2018 and this needs to be addressed. The EPA is also concerned at the lack of urgency in dealing with the risk posed to public health by lead in our networks, homes and buildings.

The priority issues identified by the EPA and discussed throughout this report can be viewed under the umbrella of the Drinking Water Safety Plan approach. This approach assesses all the things that could go wrong in a water supply (hazards) from the source to the tap and aims to reduce the risk of the hazards occurring by taking preventative actions. The severe weather events experienced in 2018 show how important it is to know what could go wrong and take steps in advance to reduce the impact of such events. Only by implementing a Drinking Water Safety Plan approach can we be sure that our public water supplies are safe, secure and resilient.

## Appendices

**Appendix 1** 2018 Monitoring and Compliance Summary for public water supplies.

**Appendix 2** Boil Notices and Water Restriction Notices in place on public water supplies in 2018.

**Appendix 3** Quality and Enforcement Summary Statistics by county or area in 2018.

**Appendix 4** Status of Directions at end of 2018.

**Appendix 5** Remedial Action List Summary by county or area for 2018.

**Appendix 1: 2018 Monitoring and Compliance Summary for public water supplies**

Parameter	No. of Zones Monitored	No of Zones with Exceedances	% of Zones Complying	No. of Samples Analysed	No. of Samples Exceeding	% of Samples Complying
<b>Microbiological</b>						
<i>E. coli</i>	804	6	<b>99.3</b>	8394	6	<b>99.9</b>
<i>Enterococci</i>	635	6	<b>99.1</b>	1055	6	<b>99.4</b>
<b>Chemical</b>						
1,2-dichloroethane	634	0	<b>100.0</b>	1047	0	<b>100.0</b>
Antimony	638	0	<b>100.0</b>	1056	0	<b>100.0</b>
Arsenic	637	0	<b>100.0</b>	1058	0	<b>100.0</b>
Benzene	636	0	<b>100.0</b>	1051	0	<b>100.0</b>
Benzo(a)pyrene	638	0	<b>100.0</b>	1051	0	<b>100.0</b>
Boron	636	0	<b>100.0</b>	1049	0	<b>100.0</b>
Bromate	638	0	<b>100.0</b>	1046	0	<b>100.0</b>
Cadmium	636	0	<b>100.0</b>	1050	0	<b>100.0</b>
Chromium	636	0	<b>100.0</b>	1049	0	<b>100.0</b>
Copper	683	4	<b>99.4</b>	1210	4	<b>99.7</b>
Cyanide	638	0	<b>100.0</b>	1052	0	<b>100.0</b>
Fluoride	639	16	<b>97.5</b>	1076	16	<b>98.5</b>
Lead	685	14	<b>98.0</b>	1226	14	<b>98.9</b>
Mercury	638	0	<b>100.0</b>	1053	0	<b>100.0</b>
Nickel	683	0	<b>100.0</b>	1213	0	<b>100.0</b>
Nitrate	639	0	<b>100.0</b>	1329	0	<b>100.0</b>
Nitrite (at tap)	638	1	<b>99.8</b>	1334	1	<b>99.9</b>
PAH	638	1	<b>99.8</b>	1050	1	<b>99.9</b>
Pesticides - Total	636	0	<b>100.0</b>	1046	0	<b>100.0</b>
Selenium	636	1	<b>99.8</b>	1049	1	<b>99.9</b>
Tetrachloroethene & Trichloroethene	638	0	<b>100.0</b>	1054	0	<b>100.0</b>
Total Trihalomethanes	640	35	<b>94.5</b>	1082	53	<b>95.1</b>
<b>Indicator</b>						
Aluminium	658	46	<b>93.0</b>	6153	67	<b>98.9</b>
Ammonium	690	3	<b>99.6</b>	1943	3	<b>99.8</b>
Chloride	635	1	<b>99.8</b>	1054	1	<b>99.9</b>
<i>Clostridium perfringens</i>	638	4	<b>99.4</b>	1554	4	<b>99.7</b>
Coliform Bacteria	804	73	<b>90.9</b>	8436	88	<b>99.0</b>
Colony Count @ 22°C	802	108	<b>86.5</b>	8060	140	<b>98.3</b>
Colour	803	35	<b>95.6</b>	8371	58	<b>99.3</b>
Conductivity	804	0	<b>100.0</b>	8407	0	<b>100.0</b>
Iron	804	60	<b>92.5</b>	8385	100	<b>98.8</b>
Manganese	636	15	<b>97.6</b>	1463	15	<b>99.0</b>
Odour	803	38	<b>95.3</b>	8384	149	<b>98.2</b>
pH	804	159	<b>80.2</b>	8406	313	<b>96.3</b>
Sodium	636	2	<b>99.7</b>	1049	2	<b>99.8</b>
Sulphate	638	0	<b>100.0</b>	1058	0	<b>100.0</b>
Taste	803	24	<b>97.0</b>	8394	126	<b>98.5</b>
Total Organic Carbon	631	17	<b>97.3</b>	1044	18	<b>98.3</b>
Turbidity (at tap)	804	14	<b>98.3</b>	8406	15	<b>99.8</b>

**Appendix 2: Boil Notices and Water Restriction Notices in place on public water supplies during 2018**

Area/County	Scheme Name	Reason	Boil Notice (BN) / Water Restriction (WR)	Population Affected	Affecting Full/Part Of Supply	Date Notice Issued	Date Notice Lifted
Carlow	Borris	Precautionary - no exceedance confirmed	WR	629	Full	15/10/2018	16/10/2018
Carlow	Borris	Precautionary - no exceedance confirmed	BN	629	Full	16/10/2018	20/10/2018
Cavan	Shercock PWS	Precautionary - no exceedance confirmed	WR	640	Full	21/05/2018	25/05/2018
Cavan	Ballyhaise PWS	Nitrite (at tap)	WR	589	Full	26/07/2018	31/07/2018
Cork	Innishannon	E. coli	BN	75	Part	19/04/2018	01/06/2018
Cork	Tibbotstown	Iron	WR	170	Part	17/08/2018	12/11/2018
Cork	Tibbotstown	Iron	WR	216	Part	16/11/2018	
Dublin City	Vartry Reservoir	Inadequate Disinfection	BN	65,000	Part	29/01/2018	01/02/2018
Dun Laoghaire Rathdown	DLR Zone 2	Coliform Bacteria	BN	3	Part	15/08/2017	13/03/2018
Dun Laoghaire Rathdown	DLR Zone 2	Coliform Bacteria	BN	3	Part	29/08/2017	09/02/2018
Dun Laoghaire Rathdown	DLR Zone 4	Giardia	BN	466	Full	21/12/2018	
Galway	Kilconnell PWS	Turbidity (at treatment works)	BN	246	Full	18/06/2018	
Galway	Loughrea - Knockanima PWS	E. coli	BN	70	Part	09/11/2018	16/11/2018
Kilkenny	Ballyragget PWS	Nitrate	WR	1,391	Full	08/02/2018	23/07/2018
Laois	Portarlinton 2 PWS	Precautionary - no exceedance confirmed	BN	60	Part	01/06/2018	03/07/2018
Laois	Lough Borehole Supply PWS	Precautionary - no exceedance confirmed	BN	90	Part	01/06/2018	25/06/2018
Limerick	Newcastle West PWS	PAH	WR	60	Part	24/06/2016	12/12/2018

Area/County	Scheme Name	Reason	Boil Notice (BN) / Water Restriction (WR)	Population Affected	Affecting Full/Part Of Supply	Date Notice Issued	Date Notice Lifted
Limerick	Limerick City Environs PWS	Aluminium	WR	120	Part	31/08/2018	03/09/2018
Limerick	Rathkeale PWS	Turbidity (at tap)	WR	2,921	Full	05/10/2018	18/10/2018
Mayo	Ballycastle PWS	Cryptosporidium	BN	402	Full	12/10/2018	04/12/2018
Meath	Baltrasna	E. coli	BN	9	Full	22/12/2014	
Meath	Dunboyne	Free Chlorine	WR	1,200	Part	07/02/2018	08/02/2018
Meath	Abbeyfields Housing Estate Clonard	Enterococci	BN	239	Full	05/06/2018	11/06/2018
Roscommon	Grangemore	Coliform Bacteria	BN	1,532	Full	27/07/2018	06/11/2018
Sligo	Kilsellagh Public Water Supply	Coliform Bacteria	BN	5	Part	12/10/2017	
Sligo	Lough Talt Regional Water Supply	Cryptosporidium	BN	12,260	Full	05/02/2018	25/10/2018
Tipperary	Fethard Regional Public Water Supply	PAH	WR	6,525	Full	05/03/2018	28/03/2018
Tipperary	Commons PWS	Manganese	WR	51	Part	08/03/2018	31/10/2018
Tipperary	Clonmel Poulavanogue	Inadequate Disinfection	BN	90	Part	11/10/2018	
Tipperary	Commons PWS	Inadequate Disinfection	BN	5	Part	15/10/2018	
Tipperary	Carrick-on-Suir- Crottys Lake	Inadequate Disinfection	BN	57	Part	15/10/2018	
Waterford	Ballydermody	Nitrate	WR	2	Full	12/12/2013	
Waterford	Nire	Precautionary - no exceedance confirmed	BN	5	Part	13/08/2014	19/09/2018

Area/County	Scheme Name	Reason	Boil Notice (BN) / Water Restriction (WR)	Population Affected	Affecting Full/Part Of Supply	Date Notice Issued	Date Notice Lifted
Waterford	Scrothea	Coliform Bacteria	BN	3	Part	16/10/2014	
Waterford	Comeragh	Storm Emma - precautionary BN	BN	15	Full	01/03/2018	08/03/2018
Waterford	Grallagh	Storm Emma - precautionary BN	BN	103	Full	01/03/2018	08/03/2018
Waterford	Ballyguiry	Storm Emma - precautionary BN	BN	85	Full	01/03/2018	08/03/2018
Waterford	Tinalyra Kilcooney	Storm Emma - precautionary BN	BN	80	Full	01/03/2018	08/03/2018
Waterford	Carrigeen	Storm Emma - precautionary BN	BN	37	Full	01/03/2018	08/03/2018
Waterford	Briska Lower	Storm Emma - precautionary BN	BN	26	Full	01/03/2018	08/03/2018
Waterford	Ballyknock	Storm Emma - precautionary BN	BN	15	Full	01/03/2018	08/03/2018
Waterford	Knockalisheen	Storm Emma - precautionary BN	BN	159	Full	02/03/2018	08/03/2018
Waterford	Melleray	Storm Emma - precautionary BN	BN	125	Full	04/03/2018	08/03/2018
Waterford	East Waterford Water Supply Scheme	Precautionary - no exceedance confirmed	BN	450	Part	10/03/2018	17/03/2018
Waterford	Strancally	Precautionary - no exceedance confirmed	BN	36	Full	03/09/2018	14/09/2018
Waterford	Portlaw	Coliform Bacteria	BN	10	Part	28/09/2018	
Wexford	Enniscorthy Town & Environs WSS	Storm Emma - abnormal contamination of source and inadequate disinfection	BN	10923	Full	05/03/2018	08/03/2018
Wexford	Ferns Regional	E. coli	BN	2	Part	09/04/2018	17/04/2018
Wexford	The Ballagh, Clonroche	Coliform Bacteria	BN	15	Full	09/04/2018	25/04/2018
Wicklow	Johnstown South (Arklow) Public Supply	Coliform Bacteria	BN	6	Full	04/06/2015	
Wicklow	Newtown Newcastle Kilcoole PWS	E. coli	BN	40	Part	01/02/2018	03/02/2018
Wicklow	Aughrim Annacurra PWS	Storm Emma - precautionary BN	BN	1898	Full	01/03/2018	07/03/2018
Wicklow	Barndarrig PWS	Storm Emma - precautionary BN	BN	321	Full	02/03/2018	05/03/2018

Area/County	Scheme Name	Reason	Boil Notice (BN) / Water Restriction (WR)	Population Affected	Affecting Full/Part Of Supply	Date Notice Issued	Date Notice Lifted
Wicklow	Arklow Public Supply	Enterococci	BN	3	Part	23/04/2018	30/04/2018
Wicklow	Ballingate Public Supply	Coliform Bacteria	BN	15	Full	30/04/2018	01/06/2018
Wicklow	Kiltegan Public Supply	Nitrate	WR	269	Full	01/05/2018	01/06/2018
Wicklow	Aughrim Annacurra Public Supply	Enterococci	BN	1,588	Full	02/05/2018	01/06/2018
Wicklow	Greystones Windgates Templecarrig PWS	Coliform Bacteria	BN	3	Part	26/07/2018	14/08/2018
Wicklow	Kiltegan Public Supply	Nitrate	WR	269	Full	24/12/2018	

**Appendix 3: Quality and Enforcement Statistics for public supplies by county or area for 2018**

County/ Area <sup>6</sup>	Public Supplies <sup>1</sup>		Parameter Compliance (%)		Boil Notices <sup>2</sup>		Water Restrictions <sup>3</sup>		Directions <sup>4</sup>	Audits <sup>5</sup>
	Number	Population	Microbiological	Chemical	Number	Population affected	Number	Population Affected	Number Issued	Number
Carlow	14	40439	100	99.0	1	629	1	629		1
Cavan	16	34049	100	100			2	1,229	2	1
Clare	17	84885	99.6	99.8						
Cork City	1	42089	100	100						
Cork County	171	351077	100	99.8	1	75	2	216		8
Donegal	32	149144	100	99.3						
Dublin City	6	527737	100	99.8	1	65,000			1	2
Dun Laoghaire-Rathdown	6	212257	100	99.6	3	472			1	2
Fingal	2	278926	100	99.4						
Galway City	1	77814	99.1	100						
Galway County	38	115211	99.8	99.5	2	316				
Kerry	51	126772	100	99.6						2
Kildare	10	206944	100	100						
Kilkenny	23	67577	100	99.6						5
Laois	26	57212	100	100	2	150	1	1,391		3
Leitrim	3	23011	100	99.5						
Limerick	36	177644	100	100			3	3,101	1	3
Longford	6	34430	100	99.7						
Louth	11	141505	99.3	99.2						2
Mayo	22	89296	100	99.9	1	402				1
Meath	57	124167	99.7	99.4	2	248	1	1,200		2
Monaghan	12	30772	100	99.7						2
Offaly	21	56127	98.5	99.9						
Roscommon	12	54497	100	99.6	1	1,532				2
Sligo	6	54611	100	98.5	2	12,265				
South Dublin	4	267674	100	100						
Tipperary	49	134540	99.6	99.8	3	152	2	6,576		3
Waterford	96	90611	100	99.2	14	1,149	1	2		3
Westmeath	3	75298	100	99.7						1
Wexford	47	105718	99.7	100	3	10,940			1	6
Wicklow	57	117960	99.5	99.5	8	3,874	2	269		3

<sup>1</sup> Full list of public supplies available at <http://www.epa.ie/pubs/advice/drinkingwater/publicdrinkingwatersupplies/>; <sup>2</sup> boil notice and water restriction numbers included above refer to notices that were the responsibility of either Irish Water or both Irish Water and the property owner to resolve. <sup>3</sup> Water Restrictions excludes advice issued to consumers in respect of lead. <sup>4</sup> Further information in Section 3; <sup>5</sup> Totals do not include monitoring programme audits. Audit reports available at <http://www.epa.ie/pubs/advice/drinkingwater/audits/>; <sup>6</sup> Drinking Water Monitoring results and water supply details for each year since 2000 for each county is available at <http://erc.epa.ie/safer/resourcelisting.jsp?oID=10206&username=EPA%20Drinking%20Water>.

**Appendix 4: Status of Directions at end of 2018****EPA directions issued during 2018 – reason for issue and status at end of 2018.**

Area/County	Supply	Reason for Direction	Issue Date	Status at end of 2018
<b>Cavan</b>	Cavan RWSS	Persistent pesticide failures	23/11/2018	The date specified in the Direction has not yet been reached.
<b>Cavan</b>	Belturbet	Persistent pesticide failures	23/11/2018	The date specified in the Direction has not yet been reached.
<b>Dublin City Council</b>	DCC Zone 6	Disinfection failures at Stillorgan Reservoir	19/10/2018	Action programme being implemented by Irish Water.
<b>Dun Laoghaire/Rathdown</b>	DLR Zone 2	Failure to complete action programme on time	10/04/2018	Direction deadline passed, further enforcement action not currently being pursued due to verified progress with necessary works.
<b>Limerick</b>	Newcastle West	Persistent pesticide failures	18/06/2018	The date specified in the Direction has not yet been reached.
<b>Wexford</b>	Clonroche	Persistent pesticide failures	21/12/2018	The date specified in the Direction has not yet been reached.

**Directions issued prior to 2018 - reason for issue and status at end of 2018.**

Area/County	Supply	Reason for Direction	Issue Date	Status at end of 2018
<b>Cork</b>	Kealkill	Non-compliance with Trihalomethane (THM) standard	05/06/2015	Date in the Direction has passed. Further enforcement action to be considered in 2019.
<b>Cork</b>	Drimoleague	Non-compliance with THM standard	05/06/2015	Date in the Direction has passed. Further enforcement action to be considered in 2019.
<b>Donegal</b>	Owenteskna/ Kilcar	Non-compliance with THM standard	20/01/2015	Direction deadline passed. Further enforcement action not considered due to verified completion of works after Direction deadline.
<b>Donegal</b>	Cashilard	Non-compliance with THM standard	11/12/2014	EPA initiated prosecution. Charges subsequently dropped <sup>1</sup> .

Area/ County	Supply	Reason for Direction	Issue Date	Status at end of 2018
<b>Donegal</b>	Gortahork- Falcarragh	Non-compliance with THM standard	11/12/2014	EPA initiated prosecution. Charges subsequently dropped <sup>1</sup> .
<b>Donegal</b>	Fintown	Non-compliance with THM standard	11/12/2014	IW prosecuted for non-compliance with Direction <sup>1</sup> .
<b>Donegal</b>	Greencastle	Non-compliance with THM standard	11/12/2014	IW prosecuted for non-compliance with Direction <sup>1</sup> .
<b>Donegal</b>	Portnoo Narin	Non-compliance with THM standard	11/12/2014	EPA initiated prosecution. Charges subsequently dropped <sup>1</sup> .
<b>Donegal</b>	Rathmullan	Non-compliance with THM standard	11/04/2016	EPA initiated prosecution. Charges subsequently dropped <sup>1</sup> .
<b>Donegal</b>	Letterkenny	Non-compliance with THM standard	11/04/2016	Direction deadline passed. Enforcement action not currently being considered due to verified progress with works.
<b>Dublin</b>	Ballyboden/ Ballymore Eustace	No action programme/ failure to adhere to RAL dates	05/06/2015	Direction deadline passed. Further enforcement action not considered due to verified completion of works after Direction deadline.
<b>Galway</b>	Inishmore Cregacareen	Non-compliance with THM standard	29/05/2015	Action Programme being implemented by Irish Water.
<b>Kilkenny</b>	Inistiogue	Non-compliance with THM standard	05/06/2015	Direction deadline passed. Further enforcement action to be considered in 2019.
<b>Kilkenny</b>	Kilkenny City (Troyswood)	Persistent pesticide failures	14/11/2017	The date in the direction has not yet been reached. Compliance will be determined after the due date.
<b>Limerick</b>	Abbeyfeale	Persistent pesticide failures	14/11/2017	The date in the direction has not yet been reached. Compliance will be determined after the due date.
<b>Longford</b>	Longford Central	Persistent pesticide failures	14/11/2017	The date in the direction has not yet been reached. Compliance will be determined after the due date.
<b>Waterford</b>	Ring/Helvick	Non-compliance with THM standard	01/03/2016	Direction deadline passed. Further enforcement action to be considered in 2019.

<sup>1</sup> In April 2018, the EPA took prosecutions against Irish Water for failure to complete upgrade works for six supplies in Donegal. Irish Water pleaded guilty to two summonses, relating to Fintown and Greencastle, with the evidence in relation to all six supplies being outlined to the Court to be taken into consideration. Irish Water was convicted in relation to the summonses for Fintown and Greencastle and charges in relation to the other supplies were dropped.

**Appendix 5: Remedial Action List Summary by county or area at end 2018**

County	No. of Supplies on RAL		Progress on Completion of Remedial Works				
	Original RAL	RAL at the end of 2018	Works Completed	To be completed in 2019	To be completed in 2020	To be completed in 2021	No Timeframe for Completion
Carlow	4	0	0	0	0	0	0
Cavan	10	2	0	0	2	0	0
Clare	9	3	0	3	0	0	0
Cork City	1	1	0	0	1	0	0
Cork	38	12	2	6	4	0	0
Donegal	33	6	1	5	0	0	0
Dublin City	1	0	0	0	0	0	0
Dun Laoghaire-Rathdown	0	1	0	0	1	0	0
Fingal	0	0	0	0	0	0	0
South Dublin	0	0	0	0	0	0	0
Galway City	1	0	0	0	0	0	0
Galway	34	1	1	0	0	0	0
Kerry	41	6	3	3	0	0	0
Kildare	0	0	0	0	0	0	0
Kilkenny	7	5	0	4	0	1	0
Laois	8	0	0	0	0	0	0
Leitrim	2	0	0	0	0	0	0
Limerick	12	3	0	2	1	0	0
Limerick City	1	0	0	0	0	0	0
Longford	5	4	0	4	0	0	0
Louth	3	1	0	1	0	0	0
Mayo	15	1	0	1	0	0	0
Meath	8	2	0	1	1	0	0
Monaghan	12	0	0	0	0	0	0

County	No. of Supplies on RAL		Progress on Completion of Remedial Works				
	Original RAL	RAL at the end of 2018	Works Completed	To be completed in 2019	To be completed in 2020	To be completed in 2021	No Timeframe for Completion
Offaly	8	0	0	0	0	0	0
Roscommon	10	1	0	1	0	0	0
Sligo	8	1	0	0	0	1	0
Tipperary	20	1	0	0	1	0	0
Waterford	18	1	0	1	0	0	0
Waterford City	1	0	0	0	0	0	0
Westmeath	3	1	0	1	0	0	0
Wexford	4	1	0	0	0	1	0
Wicklow	22	9	0	2	6	1	0

## AN GHNÍOMHAIREACHT UM CHAOMHNÚ COMHSHAOIL

Tá an Gníomhaireacht um Chaomhnú Comhshaoil (GCC) freagrach as an gcomhshaoil a chaomhnú agus a fheabhsú mar shócmhainn luachmhar do mhuintir na hÉireann. Táimid tiomanta do dhaoine agus don chomhshaoil a chosaint ó éifeachtaí díobhálacha na radaíochta agus an truaillithe.

## Is féidir obair na Gníomhaireachta a roinnt ina trí phríomhréimse:

**Rialú:** Déanaimid córais éifeachtacha rialaithe agus comhlionta comhshaoil a chur i bhfeidhm chun torthaí maithe comhshaoil a sholáthar agus chun díriú orthu siúd nach gcloíonn leis na córais sin.

**Eolas:** Soláthraimid sonraí, faisnéis agus measúnú comhshaoil atá ar ardchaighdeán, spriocdhírithé agus tráthúil chun bonn eolais a chur faoin gcinnteoireacht ar gach leibhéal.

**Tacaíocht:** Bímid ag saothrú i gcomhar le grúpaí eile chun tacú le comhshaoil atá glan, táirgiúil agus cosanta go maith, agus le hiompar a chuirfidh le comhshaoil inbhuanaithe.

## Ár bhFreagrachtaí

### Ceadúnú

Déanaimid na gníomhaíochtaí seo a leanas a rialú ionas nach ndéanann siad dochar do shláinte an phobail ná don chomhshaoil:

- saoráidí dramhaíola (*m.sh. láithreáin líonta talún, loisceoirí, stáisiúin aistrithe dramhaíola*);
- gníomhaíochtaí tionsclaíoch ar scála mór (*m.sh. déantúsaíocht cógaisíochta, déantúsaíocht stroighne, stáisiúin chumhachta*);
- an diantalmhaíocht (*m.sh. muca, éanlaith*);
- úsáid shrianta agus scaoileadh rialaithe Orgánach Géinmhodhnaithe (*OGM*);
- foinsí radaíochta ianúcháin (*m.sh. trealamh x-gha agus radaiteiripe, foinsí tionsclaíochta*);
- áiseanna móra stórála peitрил;
- scardadh dramhuisce;
- gníomhaíochtaí dumpála ar farraige.

### Forfheidhmiú Náisiúnta i leith Cúrsaí Comhshaoil

- Clár náisiúnta iniúchtaí agus cigireachtaí a dhéanamh gach bliain ar shaoráidí a bhfuil ceadúnas ón nGníomhaireacht acu.
- Maoirseacht a dhéanamh ar fhreagrachtaí cosanta comhshaoil na n-údarás áitiúil.
- Caighdeán an uisce óil, arna sholáthar ag soláthraithe uisce phoiblí, a mhaoirsiú.
- Obair le húdarás áitiúla agus le gníomhaireachtaí eile chun dul i ngleic le coireanna comhshaoil trí chomhordú a dhéanamh ar líonra forfheidhmiúcháin náisiúnta, trí dhírú ar chiontóirí, agus trí mhaoirsiú a dhéanamh ar leasúchán.
- Cur i bhfeidhm rialachán ar nós na Rialachán um Dhramhthrealamh Leictreach agus Leictreonach (DTLL), um Shrian ar Shubstaintí Guaiseacha agus na Rialachán um rialú ar shubstaintí a ídíonn an ciseal ózón.
- An dlí a chur orthu siúd a bhreiseann dlí an chomhshaoil agus a dhéanann dochar don chomhshaoil.

### Bainistíocht Uisce

- Monatóireacht agus tuairiscí a dhéanamh ar cháilíocht aibhneacha, lochanna, uisce idirchriosacha agus cósta na hÉireann, agus screamhuiscí; leibhéal uisce agus sruthanna aibhneacha a thomhas.
- Comhordú náisiúnta agus maoirsiú a dhéanamh ar an gCreat-Treoir Uisce.
- Monatóireacht agus tuairiscí a dhéanamh ar Cháilíocht an Uisce Snámha.

## Monatóireacht, Anailís agus Tuairiscí ar an gComhshaoil

- Monatóireacht a dhéanamh ar cháilíocht an aeir agus Treoir an AE maidir le hAer Glan don Eoraip (CAFÉ) a chur chun feidhme.
- Tuairiscí neamhspleách le cabhrú le cinnteoireacht an rialtais náisiúnta agus na n-údarás áitiúil (*m.sh. tuairiscíu tréimhsiúil ar staid Chomhshaoil na hÉireann agus Tuarascálacha ar Tháscairí*).

## Rialú Astaíochtaí na nGás Ceaptha Teasa in Éirinn

- Fardail agus réamh-mheastacháin na hÉireann maidir le gáis cheaptha teasa a ullmhú.
- An Treoir maidir le Trádáil Astaíochtaí a chur chun feidhme i gcomhair breis agus 100 de na táirgeoirí dé-ocsaíde carbóin is mó in Éirinn.

## Taighde agus Forbairt Comhshaoil

- Taighde comhshaoil a chistiú chun brúnna a shainiú, bonn eolais a chur faoi bheartais, agus réitigh a sholáthar i réimsí na haeraíde, an uisce agus na hinbhuanaitheachta.

## Measúnacht Straitéiseach Timpeallachta

- Measúnacht a dhéanamh ar thionchar pleananna agus clár beartaithe ar an gcomhshaoil in Éirinn (*m.sh. mórphleananna forbartha*).

## Cosaint Raideolaíoch

- Monatóireacht a dhéanamh ar leibhéal radaíochta, measúnacht a dhéanamh ar nochtadh mhuintir na hÉireann don radaíocht ianúcháin.
- Cabhrú le pleananna náisiúnta a fhorbairt le haghaidh éigeandálaí ag eascairt as taismí núicléacha.
- Monatóireacht a dhéanamh ar fhorbairtí thar lear a bhaineann le saoráidí núicléacha agus leis an tsábháilteacht raideolaíochta.
- Sainseirbhísí cosanta ar an radaíocht a sholáthar, nó maoirsiú a dhéanamh ar sholáthar na seirbhísí sin.

## Treoir, Faisnéis Inrochtana agus Oideachas

- Comhairle agus treoir a chur ar fáil d'earnáil na tionsclaíochta agus don phobal maidir le hábhair a bhaineann le caomhnú an chomhshaoil agus leis an gcosaint raideolaíoch.
- Faisnéis thráthúil ar an gcomhshaoil ar a bhfuil fáil éasca a chur ar fáil chun rannpháirtíocht an phobail a spreagadh sa chinnteoireacht i ndáil leis an gcomhshaoil (*m.sh. Timpeall an Tí, léarscáileanna radóin*).
- Comhairle a chur ar fáil don Rialtas maidir le hábhair a bhaineann leis an tsábháilteacht raideolaíoch agus le cúrsaí práinnfhreagartha.
- Plean Náisiúnta Bainistíochta Dramhaíola Guaisí a fhorbairt chun dramhaíl ghuaiseach a chosc agus a bhainistiú.

## Múscailt Feasachta agus Athrú Iompraíochta

- Feasacht chomhshaoil níos fearr a ghiniúint agus dul i bhfeidhm ar athrú iompraíochta dearfach trí thacú le gnóthais, le pobail agus le teaghlaigh a bheith níos éifeachtúla ar acmhainní.
- Tástáil le haghaidh radóin a chur chun cinn i dtithe agus in ionaid oibre, agus gníomhartha leasúcháin a spreagadh nuair is gá.

## Bainistíocht agus struchtúr na Gníomhaireachta um Chaomhnú Comhshaoil

Tá an gníomhaíocht á bainistiú ag Bord lánaimseartha, ar a bhfuil Ard-Stiúrthóir agus cúigear Stiúrthóirí. Déantar an obair ar fud cúig cinn d'Oifigí:

- An Oifig um Inmharthanacht Comhshaoil
- An Oifig Forfheidhmithe i leith cúrsaí Comhshaoil
- An Oifig um Fianaise is Measúnú
- Oifig um Chosaint Radaíochta agus Monatóireachta Comhshaoil
- An Oifig Cumarsáide agus Seirbhísí Corparáideacha

Tá Coiste Comhairleach ag an nGníomhaireacht le cabhrú léi. Tá dáréag comhaltaí air agus tagann siad le chéile go rialta le plé a dhéanamh ar ábhair inní agus le comhairle a chur ar an mBord.



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