

2023

The background of the page is a photograph of a water treatment plant. It shows several large, circular concrete tanks with metal walkways around them. The plant is situated in a green, hilly landscape under a blue sky with some clouds. The image is overlaid with a semi-transparent green filter.

# DRINKING WATER QUALITY IN PUBLIC SUPPLIES





# Drinking Water Quality in Public Supplies 2023

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Cover photo: *Troyswood Water Treatment Plant, Kilkenny – under construction during 2023.*

Photo courtesy of Uisce Éireann

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# EXECUTIVE SUMMARY

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Drinking water is sourced from rivers, lakes, springs, and groundwater and must be treated to make it clean and safe to drink before it is supplied to consumers. The Drinking Water Directive (EU) 2020/2184 was transposed into Irish law on the 7th of March 2023<sup>1</sup> and enacts new requirements for water suppliers and regulators. Compliance with the microbiological and chemical standards for drinking water in these regulations remains high at greater than 99.7%, which means the water in our public water supplies is safe to drink. However, drinking water treatment in many supplies is still not as robust as it needs to be to ensure all supplies are resilient and safe into the future.

## The Remedial Action List (RAL)

The Environmental Protection Agency (EPA) maintains a priority list of “at-risk” drinking water supplies, called the Remedial Action List (RAL), that must be improved to ensure that these water supplies are safe and secure, and therefore resilient for consumers. A supply may be placed on the RAL if water treatment at the supply is not adequate. People can become ill from drinking inadequately treated water - especially vulnerable people, such as the young and the elderly.

The number of people served by public water supplies on the EPA’s RAL increased further in 2023 and is now almost 561,000 people. This compares to over 481,000 people at the end of 2022. This increase is mainly due to THM (trihalomethanes<sup>2</sup>) exceedances or inadequate treatment for *Cryptosporidium* as seen in 2022. At the end of 2023, there were 7 supplies on the RAL for more than 1 year without an improvement plan completion date. Supplies on the RAL must be addressed as a priority for Uisce Éireann.

## Drinking Water Priorities and Challenges

**Ensure that water is free from bacteria.** At the end of 2023 there were two supplies on the RAL for bacterial failure. Uisce Éireann continues to undertake upgrades to disinfection systems across the country to ensure the quality of drinking water is safeguarded and free from bacteria. Uisce Éireann should continue to prioritise their Disinfection Programme<sup>3</sup> and carry out upgrades where required.

**Ensure that water is free of protozoan organisms** (i.e. *Cryptosporidium* or *Giardia*). At the end of 2023 there were 15 supplies on the RAL for inadequate treatment for protozoa. The number of people supplied (70,000), and the number of supplies on the RAL for *Cryptosporidium*/*Giardia* increased in 2023. Detections of protozoan organisms highlight the need for Uisce Éireann to upgrade treatment plants, or make sure they are properly operated.

**Ensure that water is free of chemical substances.** One in 20 samples of public water failed to meet the drinking water standards for trihalomethanes (THMs) and compliance in the public supplies has not improved in recent years. There are now 25 supplies serving almost 300,000 people on the RAL in the trihalomethane (THM) category - up from 23 supplies serving 235,000

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1 [European Union Drinking Water Regulations 2023, S.I 99 of 2023](#)

2 THMs are disinfection by-products caused by the interaction of chlorine and dissolved organic matter

3 <https://www.water.ie/projects/national-projects/national-disinfection-programme/>

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people in 2022. While the increase in the number of THM supplies on the RAL is unwelcome, it does reflect the targeted investigative work by Uisce Éireann in recent years. This proactive work is the main reason for the increased detections of THM. In early 2024 the Court of Justice of the European Union ruled that Ireland had failed to fully implement the Drinking Water Directive in relation to THMs in drinking water. THMs remain a national priority.

Supplies with pesticide detections increased from 17 to 23 supplies in 2023. The challenge remains for Uisce Éireann to continue its engagement with multiple stakeholders in the affected catchments to prevent this problem at source or ensure adequate treatment is in place at persistently affected supplies.

**Ensure that water treatment plants are operated effectively.** At the end of 2023 there were 22 supplies on the RAL for a combination of issues, including infrastructure deficits and management control challenges (serving 255,000 people - compared to 23 supplies in 2022). A water treatment plant must have the appropriate infrastructure and be managed and operated effectively, and also be able to adapt and respond to changing conditions and incidents. Essential alarms, monitors and staff training are critical prerequisites for a well-run drinking water treatment plant. Incident reporting, escalation, and response by Uisce Éireann remains a focus of EPA audits.

## Protection of Human Health

**Boil Water and Water Restriction Notices.** In 2023 Boil Water Notice (BWN) numbers increased to 91 (from 79 in 2022) – and more people (254,000) were impacted (from 182,000 in 2022). While the EPA recognises BWNs are essential to protect public health when supplies are compromised, the recent trend of significantly more long-term BWNs must be reversed by Uisce Éireann and plant resilience improved. The EPA expects to see the number and duration of BWNs reduce as a consequence of improved infrastructure and management practices.

**Reducing Exposure to Lead.** The concentration of lead permissible in drinking water will be reducing from 10 µg/l to 5 µg/l which effectively means that drinking water must have minimal contact with lead piping<sup>4</sup>. There are a number of key stakeholders that have a role to play in the removal of lead piping from drinking water supplies: Uisce Éireann, the Department of Housing, Local Government and Heritage (DHLGH), the Department of Health and homeowners.

Uisce Éireann's rate of replacement of individual lead connections is still unsatisfactory. With only an estimated 35% of public-sided lead connections removed, Uisce Éireann is highly unlikely to meet its commitment to remove these by 2026.

Despite having a National Lead Strategy in place since 2015, the DHLGH/Department of Health have yet to publish a plan on lead replacement in public buildings, or report on progress as required under the strategy. Due to this lack of progress, it is unknown how many public buildings (e.g. hospitals, schools and government offices) have unsafe levels of lead in their drinking water.

Homeowners should identify and replace any lead pipes in their properties. During 2023, the [Lead Remediation Grant Scheme](#)<sup>5</sup> was made easier for the public to get and the level of financial support enhanced, and by next year it should become clearer if this is improving uptake.

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4 In January 2036

5 <https://www.gov.ie/en/publication/7fe5d-domestic-lead-remediation-grant-scheme-customer-leaflet/#>



All stakeholders: Uisce Éireann, the DHLGH and householders, must urgently prioritise the removal of lead piping in water supplies due to the health risks posed by lead and the impending stricter limit.

**Drinking Water Safety Plans.** The new Drinking Water Regulations<sup>6</sup> have now put the requirement for Drinking Water Safety Plans (DWSPs) on a statutory footing, including completion deadlines and provision of an EPA role in reviewing these plans. More use of the Drinking Water Safety Plan (DWSP) approach is welcomed by the EPA, but implementation of the findings will be crucial to improving resilience of supplies. It is a proactive way to avoid supplies ending up on the RAL and provides a rational framework to allow for targeting of investment.

## Summary of key actions recommended

- ▲ Uisce Éireann must complete upgrades to resolve the drinking water supplies on the RAL to address issues such as THM and Cryptosporidium without delay.
- ▲ Existing infrastructure must be operated effectively to ensure its resilience in meeting drinking water quality standards.
- ▲ The DHLGH<sup>7</sup>/Department of Health must publish a plan to address lead piping in public buildings to protect public health.
- ▲ Improving the resilience of supplies, implementing Drinking Water Safety Plans (DWSP) findings and meeting the new more stringent requirements of the drinking water regulations will require corresponding sustained national investment.

<sup>6</sup> [European Union Drinking Water Regulations 2023, S.I 99 of 2023](#)

<sup>7</sup> Department of Housing, Local Government and Heritage

# 1. INTRODUCTION

This report by the Environmental Protection Agency (EPA) provides a summary of our assessment of drinking water quality in public supplies and public group water schemes in Ireland during 2023. Everyday drinking water is supplied to approximately 4 million people from public supplies. Uisce Éireann<sup>8</sup> is the national water utility responsible for providing this essential service. Uisce Éireann also provides water from its treatment plants to public group schemes. The EPA is the drinking water quality regulator responsible for enforcing the Drinking Water Regulations. The Drinking Water Directive (EU) 2020/2184 was transposed into Irish law on the 7th of March 2023<sup>9</sup> and enacts new requirements for water suppliers and regulators (see Box 1).

## **Box 1 New Drinking Water Regulations**

The new Drinking Water Directive (EU) 2020/2184 was transposed into Irish law in 2023 as [European Union Drinking Water Regulations 2023, S.I 99 of 2023](#) and enacts new requirements for water suppliers and regulators.

This includes for example:

- ▲ Monitoring for new parameters and new limits for certain parameters e.g. Lead
- ▲ Additional roles and responsibilities for the EPA e.g. enforcement powers
- ▲ Increased reporting frequency to the EU Commission
- ▲ Completion and implementation of Drinking Water Safety Plans by Uisce Éireann

A drinking water supply includes the abstraction, treatment, storage, and distribution of water from the water source to the consumer's tap. The raw water sources, which are rivers, lakes, springs, and groundwater, can be a source of contaminants if the water is not properly managed and treated at all stages of the process<sup>10</sup>. The Drinking Water Regulations require that water supplied meets quality standards and is therefore safe to drink. Failure to meet those standards can put public health at risk. The Health Service Executive (HSE) plays a key statutory consultative role in circumstances where there is a potential danger to human health from a drinking water supply and must be consulted by Uisce Éireann in this case. The roles of the relevant authorities are outlined on the next page.

8 Irish Water became Uisce Éireann on the 31 December 2022 and is referred to as such in this report.

9 [European Union Drinking Water Regulations 2023, S.I 99 of 2023](#)

10 This Uisce Éireann video outlines the treatment process <https://youtu.be/iYFwFRWOEho?feature=shared>

## Roles of the Relevant State Authorities

EPA	Uisce Éireann	Health Service Executive
<ul style="list-style-type: none"> <li>▲ EPA is the drinking water quality regulator.</li> <li>▲ It is responsible for regulatory oversight of Uisce Éireann via enforcement of the Drinking Water Regulations 2023.</li> </ul>	<ul style="list-style-type: none"> <li>▲ Uisce Éireann is the national water utility.</li> <li>▲ It is responsible for the provision of safe and secure public drinking water.</li> </ul>	<ul style="list-style-type: none"> <li>▲ The HSE must be consulted by Uisce Éireann if there could be a public health risk from drinking water.</li> <li>▲ A Boil Water/Restriction Notice may be imposed, if deemed appropriate by the HSE and the water supplier.</li> </ul>

Drinking water must be **safe** for consumers to drink, not just today, but every day. If a supply is meeting the drinking water standards today and is safe to drink, the supply also needs to be **secure** to prevent the risk of water quality failures in the future. The overall resilience of a supply therefore, is dependent on the risks to the supply, the adequacy of the water treatment infrastructure, and the management and operational controls in place. The EPA has identified a list of “at-risk” supplies called the Remedial Action List (RAL) (*Appendix A*) where the resilience of the supply must be improved. Uisce Éireann are required to put an action plan with timelines in place to rectify the issues at each of these supplies. Uisce Éireann is also undertaking nationwide programmes on improving disinfection and reducing trihalomethanes (THMs), pesticides, and exposure to lead. Uisce Éireann have committed to the DWSP approach, to identify and mitigate risks at supplies, in order to improve their resilience.

## 2. DRINKING WATER QUALITY

### 2023 Sample Compliance Rates (Public Supplies)

**99.85%**

**Microbiological parameters**

**99.62%**

**Chemical parameters**

**99.13%**

**Indicator parameters**

### Water quality in public supplies

Uisce Éireann monitors drinking water quality in public supplies to ensure that it meets the standards set out in the Drinking Water Regulations and is safe to drink. Sample compliance rates remain consistently high year to year, with results for 2023 summarised here. This is based on over 120,000 regulatory parameter results, from over 9,000 regulatory samples taken. This overall compliance rate compares well with the EU-wide historic compliance rate<sup>11</sup> of more than 99.5% for a range of chemical parameters. While public drinking water is safe to drink, the THM sample compliance rate is only 95.5%, which must be improved. This is reflected in the number of drinking water supplies on the remedial action list (RAL) for THM.

The microbiological compliance rate shows that water quality from public supplies continues to remain high. In cases where the HSE/Uisce Éireann have determined that the water is not safe to drink then the public are notified of the precautionary actions to take. This is done through local/national media or direct communication to affected people (see Chapter 4). In recent years most public water users have not been affected in this way.

### 2023 Sample Compliance Rates (Public Group Schemes)

**99.84%**

**Microbiological parameters**

**99.16%**

**Chemical parameters**

**99.18%**

**Indicator parameters**

<sup>11</sup> <https://www.eea.europa.eu/publications/zero-pollution/health/water-pollution>

A more detailed summary of the results can be found in [Appendix B](#). Uisce Éireann also carry out non-regulatory monitoring (investigative and operational monitoring) and may find failures, which must also be notified to the EPA and investigated by Uisce Éireann. Additionally, Uisce Éireann is required under the Radioactive Substances in Drinking Water Regulations<sup>12</sup> to monitor and report to the EPA on radioactivity parameters.

## Water quality in public group schemes

Uisce Éireann also provides water to public group schemes. Local authorities regulate these supplies and ensure that monitoring is carried out. Water quality from public group schemes is also high and compliance rates remains consistent year to year, with results for 2023 summarised here. However, the lower THMs compliance as seen in public supplies is also seen here – as this water is sourced from Uisce Éireann. A more detailed summary of the results can be found in [Appendix C](#).

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<sup>12</sup> European Union (Radioactive Substances in Drinking Water) Regulations 2016, S.I. 160 of 2016

## 3. PRIORITIES FOR DRINKING WATER SUPPLIES

### The Remedial Action List (RAL)

The EPA's RAL is a priority list of "at-risk" supplies that require significant corrective action, and Uisce Éireann are required to put an action plan in place to rectify the issues at each of these supplies. A supply may be placed on the RAL if it fails to meet any of the criteria in Table 3.1.

RAL supplies are identified during audits or based on breaches of standards reported to the EPA. This means that the RAL is reactive in nature. Drinking Water Safety Plans (DWSPs) and implementation of their findings will be a more proactive approach that is expected to prevent supplies being added to the RAL - as sites will be identified for improvement before breaches of standards occur (for further details on DWSPs see Section 4).

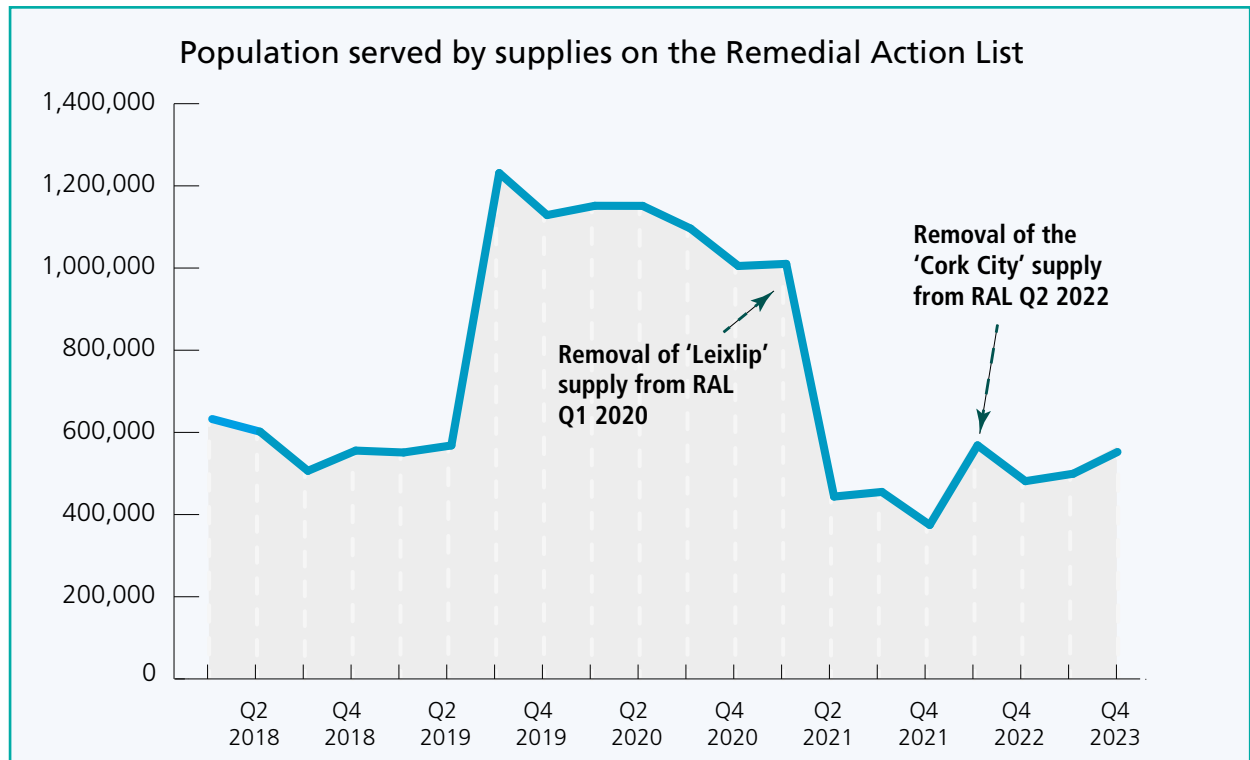
Drinking Water Priorities	
<b>Criteria 1</b>	<p>Ensure that water is free of bacteria</p> <p>Inadequate disinfection Failure to meet <i>E. coli</i> / <i>Enterococci</i> standard</p>
<b>Criteria 2</b>	<p>Ensure that water is free of protozoan organisms</p> <p>Inadequate Treatment for <i>Cryptosporidium</i> Supply identified by the HSE where further investigation or improvement may be required</p>
<b>Criteria 3</b>	<p>Ensure that water is free of chemical substances</p> <p>Disinfection by-products (trihalomethanes) Pesticides</p>
<b>Criteria 4</b>	<p>Ensure that water treatment plants are operated correctly</p> <p>Excessive levels of aluminium in the treated water Poor turbidity removal EPA Audit Observation / Treatment and Management Issues</p>

**Table 3.1:** Remedial Action List Criteria

When Uisce Éireann has verified that the issue has been fixed, a supply can be removed from the list. The RAL is updated biannually and can be viewed on the EPA’s website<sup>13</sup>.

## Findings for 2023

In 2023 there has been a further increase in the number of people served by supplies on the RAL (up to 561,000 – from 481,000) (see Figure 3.1 & 3.2). It should be noted that current number of people impacted by supplies on the RAL remains well under the 2021 peak of over 1 million people. The large decrease was primarily due to the upgrade at the Leixlip treatment plant.



**Figure 3.1:** Population served by supplies on the Remedial Action List

While the current overall number of supplies is largely unchanged from the previous year (57 supplies, down from 58) – there is a lot of movement of supplies on and off the RAL. In 2023, ten supplies were removed from the RAL due mainly to improvement works/rationalisation carried out by Uisce Éireann, but 9 new supplies were added, mainly due to THM or *Cryptosporidium* exceedances.

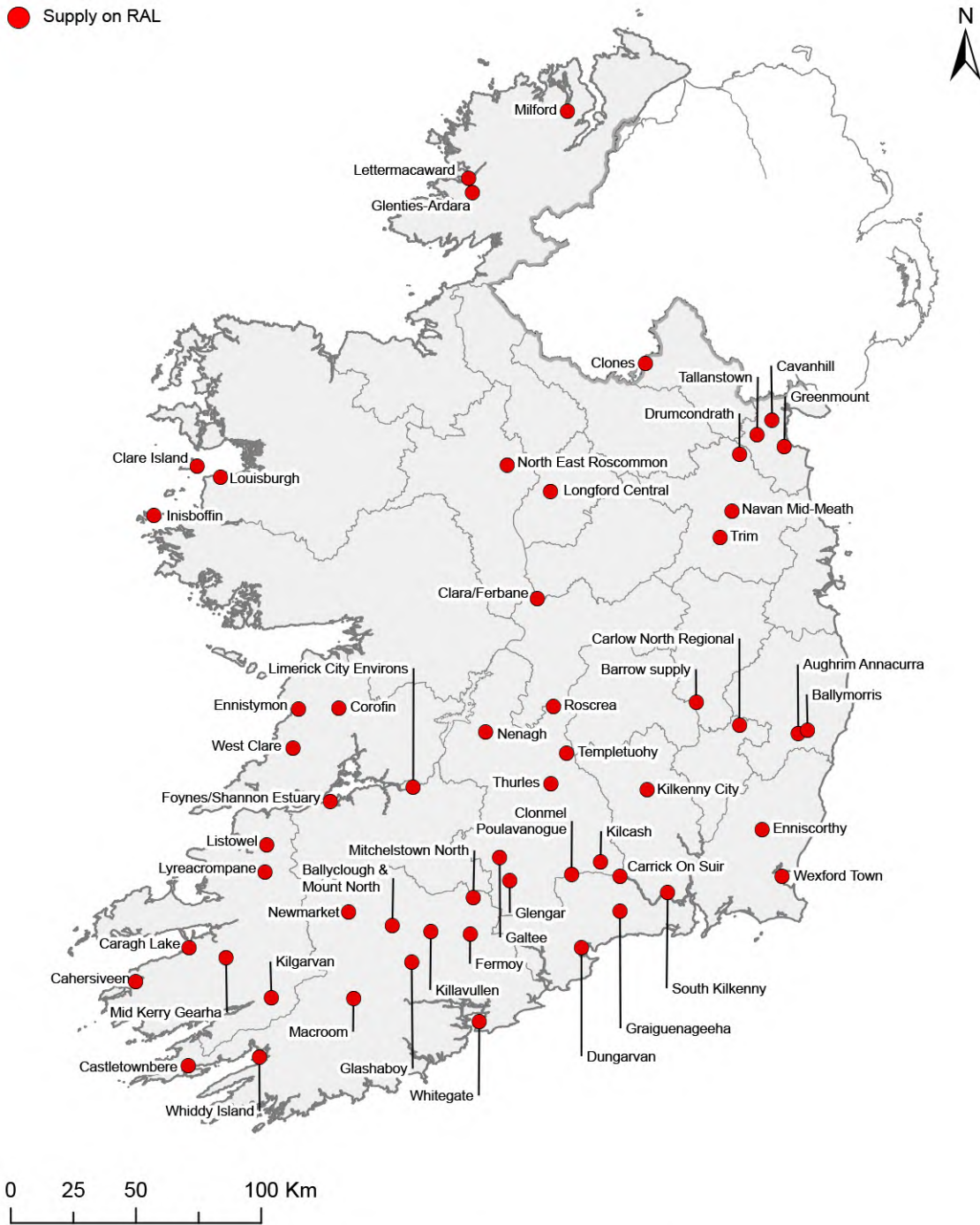
Regarding the number of supplies on the RAL, the EPA are not seeing an overall reduction in the number of ‘at-risk’ supplies, so essentially Uisce Éireann are running to stand still. Each supply removed from the RAL represents significant investment and progress by Uisce Éireann, however this needs to be continued into the future. The ongoing enforcement activities of the EPA along with Uisce Éireann’s own investigations, continue to highlight more issues. Corresponding sustained national investment is needed to bring these to a resolution. Details on the RAL can be seen in [Appendix A](#) and also [here](#) on the EPA website.

<sup>13</sup> <https://www.epa.ie/publications/compliance--enforcement/drinking-water/>



**Figure 3.2:** Water treatment plan inspection





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**Figure 3.3:** Supplies on RAL at the end of 2023.

Once a supply is on the RAL, Uisce Éireann must put in place an action plan with timelines for its removal as soon as possible. At the end of 2023, there were 15 RAL supplies without planned completion dates to improve drinking water quality. Seven of these supplies have been on the RAL for over 1 year and while an action programme is currently being defined by Uisce Éireann for these supplies – a completion date has yet to be provided. In cases where a final delivery date is difficult to state with confidence (e.g. due to planning issues), Uisce Éireann must provide evidence to the EPA that it is developing a plan for these RAL supplies.

## Actions required

Uisce Éireann must provide plans and completion dates for all supplies on the RAL and take all necessary measures to resolve these issues without delays.

Additionally, Uisce Éireann must prioritise the completion of the Drinking Water Safety Plans as required under the new Drinking Water Regulations. Implementing the findings of the Drinking Water Safety Plans should reduce the number of supplies being added to the RAL in the first place.

## Drinking Water Priority 1: Ensure that water is free of bacteria

Disinfection is the most important step of the water treatment process. It keeps our water supplies safe from pathogens such as bacteria, which can cause illness. Disinfection can be carried out using chlorination and/or ultra-violet light, to kill or deactivate pathogens.

Uisce Éireann are implementing a National Disinfection Programme<sup>14</sup> to ensure that standard specifications for disinfection systems are met at all sites.

A supply may be placed on the RAL if critical disinfection infrastructure is absent or if there is persistent presence of *E. coli* or *Enterococci* in the treated water.

## Findings for 2023

There are currently two supplies on the RAL under the bacteria/disinfection criterion – down from 3 in 2022. The supplies are small (serving <60 people) and Uisce Éireann’s plan for these is to connect to better quality public water supplies in the area.

All other Uisce Éireann plants have some form of disinfection in place before the water is provided to consumers. In some cases, additional infrastructure is required, or the management and control of existing infrastructure is inadequate. During 2023, 32 Boil Water Notices (thirty five percent) were in place due to disinfection issues, affecting almost 29,000 people – similar to that seen in 2022. Disinfection systems have been upgraded and commissioned at a total of 375 sites to date, with 29 of these sites delivered in 2023.

The EPA through its audit programme continues to find issues with inadequate disinfection (e.g. inadequate contact time<sup>15</sup>). During 2023, the EPA carried out a targeted audit campaign and part of this campaign focussed on disinfection processes– for details see Box 2.

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

15 Where chlorine is used in disinfection, it needs time (known as contact time) to fully kill any bacteria or viruses, before it reaches the first consumer on the distribution network.

## **Box 2 – Targeted audits completed in 2023**

In 2023, EPA carried out audit campaigns focussed on three areas of drinking water plant operation:

- ▲ Alarms and shutdowns – key infrastructure should have adequate alarms in place and automatic shutdowns to prevent inadequately treated water entering the network. Over 50 audits completed.
- ▲ Barriers to cryptosporidium – cryptosporidium cannot be treated by chlorination and therefore special treatments are used. Over 20 audits completed.
- ▲ Disinfection processes – focussed on water network monitoring for chlorine, adequacy of chlorine contact time, UV treatment, dosing pump back-ups. Over 25 audits completed.
- ▲ Reactive audits – were carried out responding to issues such as boil water notices/ parametric failures and are not part of the audit campaigns.



### **Chlorine dosing system being inspected during an audit**

Issues were uncovered at several sites including for example:

- ▲ inappropriate location of continuous chlorine monitors in the treatment plant.
- ▲ turbidity monitoring pointed to ineffective filter operations.
- ▲ turbidity alarms/ shutdowns not in accordance with EPA guidance.

While most plant controls inspected were satisfactory – there remain issues at plants for Uisce Éireann to resolve. When issues such as these arise the EPA has a range of enforcement tools to utilise depending on the risk posed to the public. This includes conducting site audits, placing the supply on the RAL, issuing a legally binding directions, and/or taking a prosecution.



**Control Room**



## Actions required

The National Disinfection Programme is of fundamental importance in identifying and addressing issues with disinfection in water supplies.

- ▲ Uisce Éireann must continue to undertake improvements to disinfection systems across the country to ensure that the quality of drinking water is safeguarded;
- ▲ Where significant issues are found, for example, inadequate contact time, these should be resolved immediately to protect public health.

## Drinking Water Priority 2: Ensure that water is free of protozoan organisms (*i.e. Cryptosporidium and Giardia*)

While disinfection deals with many pathogens, chlorination on its own is insufficient to kill or deactivate protozoan organisms such as *Cryptosporidium* and *Giardia* which can cause serious gastro-intestinal illness. The Drinking Water Regulations do not explicitly require monitoring of these organisms, however Uisce Éireann is required to determine if there is a risk that protozoans could be present in raw water sources. If so, then appropriate treatment processes (referred to as a ‘barrier’) must be put in place. *Cryptosporidium* and *Giardia* may be detected in treated water where:

- ▲ there is no treatment barrier in place at the water treatment plant; or
- ▲ the treatment barrier is not being properly operated, or maintained, or is inadequate.

A supply will be placed on the RAL if protozoan detections are persistent, or a protozoan barrier is not in place.



**Figure 3.4:** Inspecting a water filter (uneven distribution of bubbles means there is a problem with this filter).

## Findings for 2023

Uisce Éireann detected *Cryptosporidium* or *Giardia* in 20 supplies during 2023, up from 19 in 2022 (see Figure 3.5). Of the 20 supplies, 11 were placed on BWNs. There is again a strong clustering of protozoan issues in the south of the country as seen in previous years. It is considered that this is attributable to a combination of the geology, the higher number of supplies in this part of the country, and the intensive farming practices in the south.

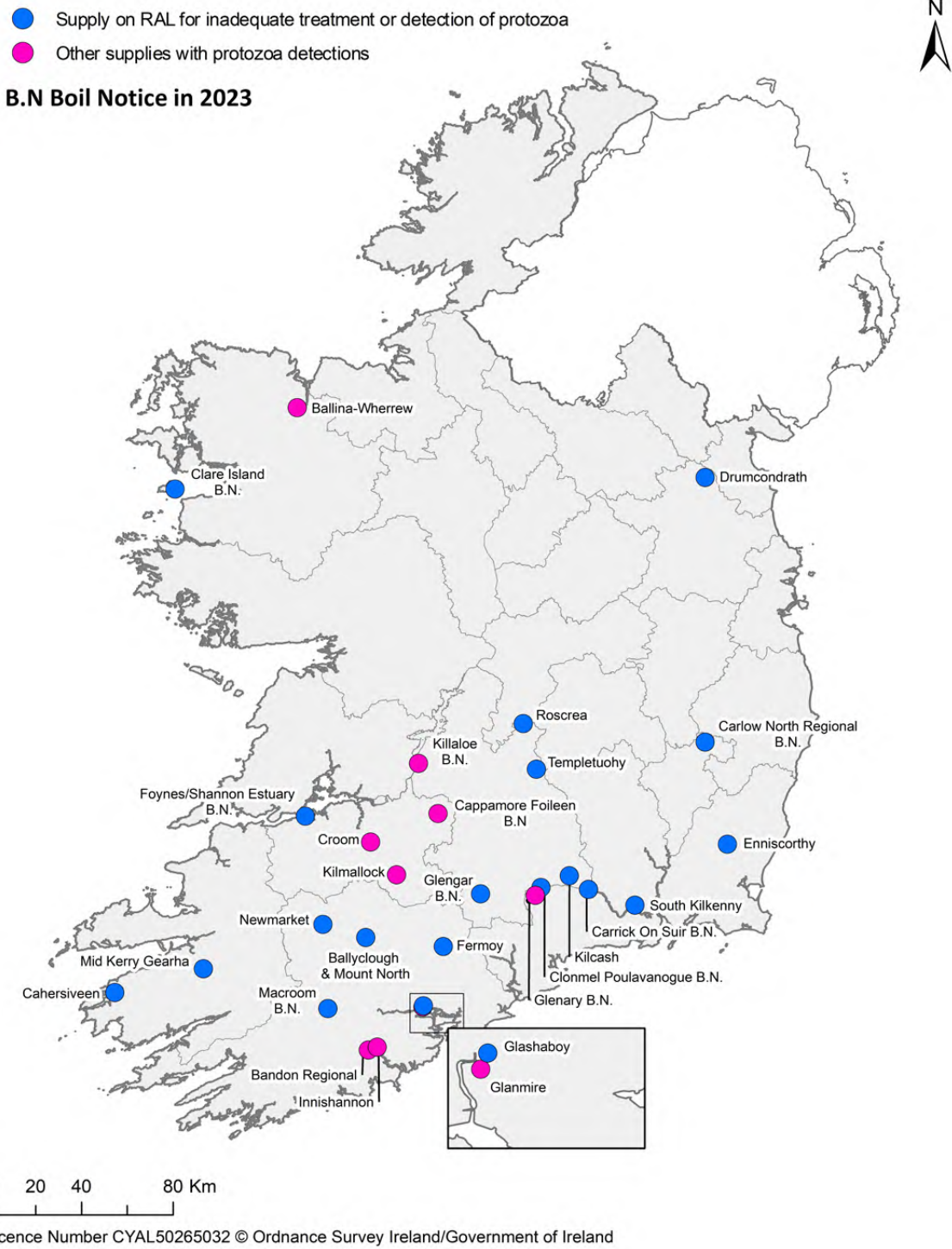
At the end of 2023 there were 15 supplies (supplying approx. 70,000 people) on the RAL for detections of (or risk of) *Cryptosporidium* – an increase from 12 in 2022. While three supplies were removed from the RAL during 2023 (due to installation of UV treatment), this progress was eroded as a further 6 were added. Action plans for dealing with these issues are generally the installation/upgrading of UV-treatment, or provision of alternative supplies. Completion dates for five supplies are during 2024/2025, with further dates in 2026 – 2028, and the remaining five have no proposed action dates for plans proposed.

The number of supplies on the RAL for protozoal risk increased in 2023 mainly due to the issues with the treatment barriers at water treatment plants. Uisce Éireann are completing risk assessments, called C-SRAMs, on all supplies to determine where additional treatment is required.

### Actions required

Protozoa detections are due either to barriers not being in place, or because barriers aren't functioning correctly.

- ▲ It is critical that Uisce Éireann correctly operate their treatment barriers.
- ▲ Deficits identified with *cryptosporidium* barriers must be addressed immediately.



**Figure 3.5:** Supplies on the RAL for inadequate protozoa (i.e. *Cryptosporidium* and *Giardia*) treatment/failures during 2023.

## Drinking Water Priority 3: Ensure that water is free of chemical substances (trihalomethanes and pesticides)

**Trihalomethanes (THMs)** form when natural organic matter in the water source, such as vegetation, reacts with chlorine used in the disinfection treatment process. For this reason, it is important to remove as much organic matter as possible from the raw water using processes at the water treatment plant. THMs are a particular issue in Ireland where about 80% of our drinking water is abstracted from rivers and lakes, with associated catchments often having peaty soil.

There is a legal limit of 100µg/l for THMs and Uisce Éireann must meet this limit in order to protect public health. A supply may be placed on the RAL if there is a persistent failure to meet the limit and processes are not sufficient to maintain THM levels below that level.

In relation to the health risks from THMs, HSE advice states:

*'.. [Health] guidelines for THMs are set to ensure a very low level of potential risk over a typical lifetime of consumption (i.e. 70 years). Short-term use of drinking water that exceeds guidelines is unlikely to have an impact on human health.'*

It goes on to state:

*'There is insufficient scientific evidence to indicate that THMs cause cancer in people ..... It should be noted that any potential health risks from disinfection by-products, including THMs, are much less than the risks from consuming water that has not been disinfected.'*

However, when uncertainty exists a precautionary approach is needed and Uisce Éireann must take the necessary actions to meet the THMs limit. For the latest health advice on THMs, please refer to the HSE website at the referenced link.<sup>16</sup>

The European Commission started infringement proceedings against Ireland in 2015 for failure to comply with the THM standard in the Drinking Water Directive. In early 2024 the Court of Justice of the European Union ruled that Ireland had failed to fully implement the Drinking Water Directive in relation to Trihalomethanes (THMs) in 30 drinking water supplies (see Box 3). Trihalomethanes remain a national priority.

<sup>16</sup> [www.hse.ie/eng/health/hll/water/drinkingwater/trihalomethanes/](http://www.hse.ie/eng/health/hll/water/drinkingwater/trihalomethanes/)

### **Box 3 THM Infringement case against Ireland**

On Thursday Jan 25<sup>th</sup>, the Court of Justice of the European Union ruled that Ireland had failed to fully implement the Drinking Water Directive in relation to breaches of the 100ug/l limit for Trihalomethanes (THMs) in drinking water in (30) drinking water supplies.

The EPA has regulatory oversight of 21 public water supplies managed and operated by Uisce Éireann. Local authorities have regulatory oversight of 9 private group water supplies.

Examples of work undertaken to resolve THM issues include:

- ▲ Construction of new treatment plant/equipment
- ▲ Optimising existing treatment process to reduce/eliminate the causes of THMs (e.g. organics)
- ▲ Replacement of supply source e.g. using groundwater supply instead of surface water supply
- ▲ Connecting to a compliant operating supply and decommissioning of old supply.

Of the 21 public water supplies in the original complaint, 16 have been resolved. The 5 remaining public supplies are on the EPA's Remedial action list (RAL). Two have works complete and awaiting verification, two are expected to have works complete in 2024 and the remaining one is due for completion in 2026.

- ▲ **Glenties-Ardara, Donegal.** Construction of water treatment plant upgrade is underway - expected works completion date of March 2025.
- ▲ **Caragh Lake, Kerry.** Upgrades works have been completed. Successful verification will mean removal from the RAL.
- ▲ **Kilkenny City, Radestown.** Works completed. Successful verification will mean removal from the RAL.
- ▲ **Drumcondrath, Meath.** Action programme to develop new groundwater sources and upgrade of the water treatment plant has an expected completion date of June 2026.
- ▲ **Aughrim/Annacurra, Wicklow.** Supply being rationalised with pipeline connection to Arklow. Works complete. Successful verification will mean removal from the RAL.

**Pesticides** are found in drinking water due to the presence of such products in the catchment of water bodies used for drinking water abstraction where pesticide use is not well managed. The term 'pesticides' includes a wide range of products, but in Ireland, herbicides are the most commonly detected, in particular MCPA<sup>17</sup> which is primarily used for rush control in grassland. Where pesticide failures are found, monthly monitoring must be carried out during the spraying season of April to November. A supply may be placed on the RAL if failures are persistent and initial investigations fail to resolve the issue.

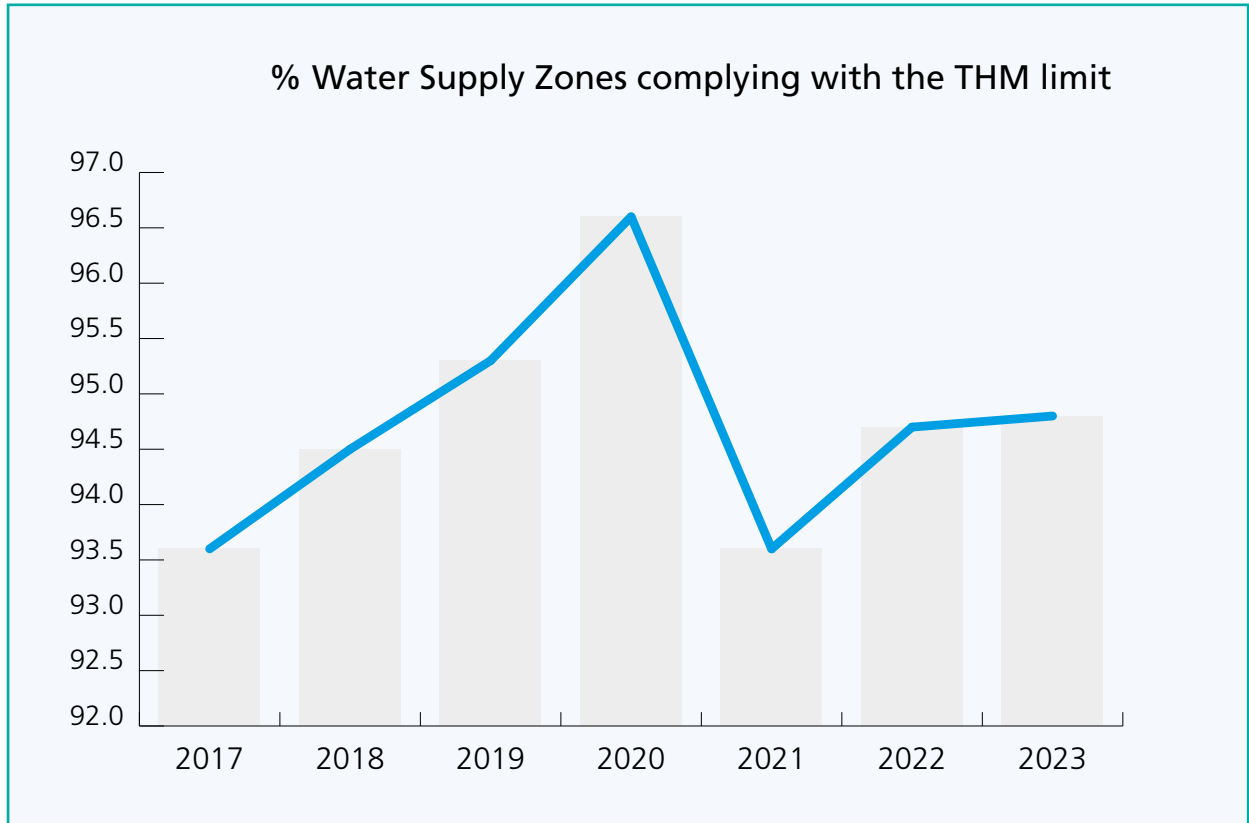
<sup>17</sup> 2-methyl-4-chlorophenoxyacetic acid



## Findings for 2023

### Trihalomethanes

In total, 41 public supplies failed to meet the standard for THMs at least once in 2023, a continued improvement from 45 in 2022. Figure 3.6 shows THM compliance trend since 2017.



**Figure 3.6:** Percentage of water supplies complying with the Trihalomethane limit<sup>18</sup>

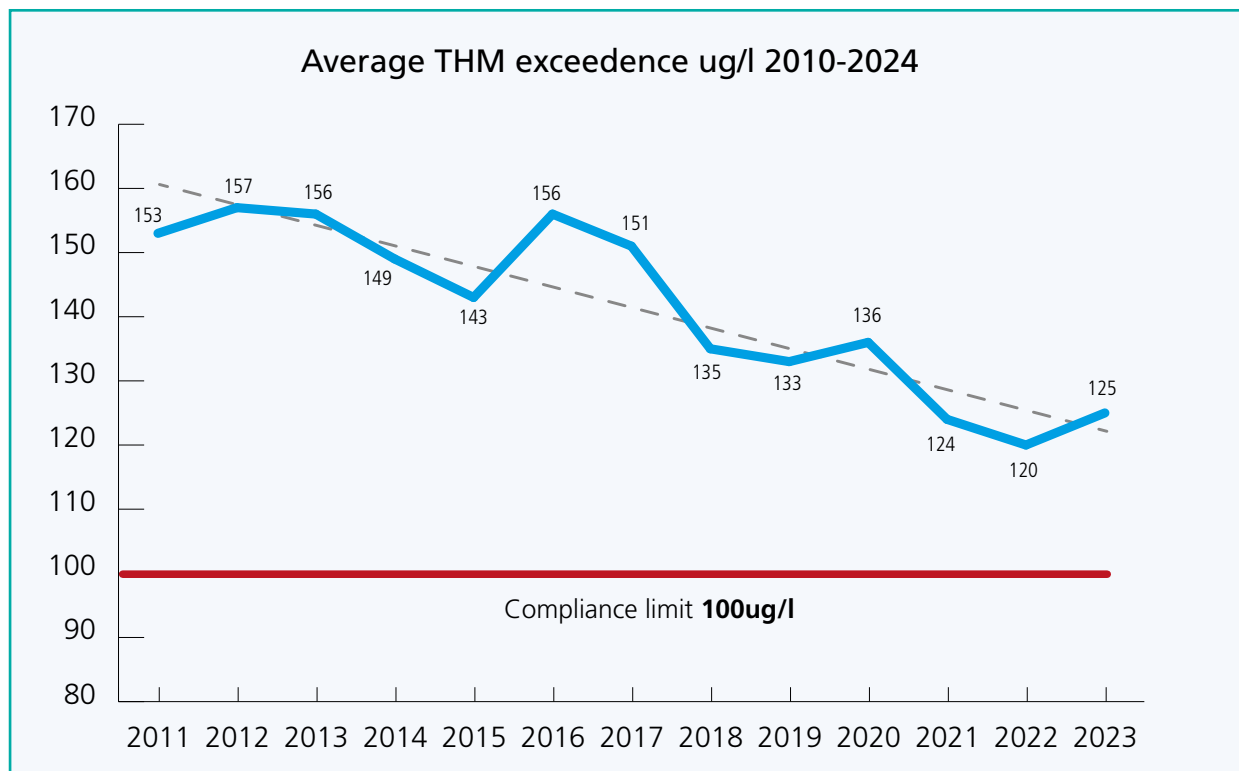
### THM Compliance

Nationally THM supply compliance is only 94.3% of supplies (regulatory data), which means more than 1 in every 20 supplies in Ireland is failing the THM limit of 100ug/l. This is reflected in the number of drinking water supplies on the remedial action list (RAL). Water supplies suffering from elevated levels of THMs make up the single biggest category on the RAL, impacting almost 300,000 people on the RAL.

In 2023 alone, nine additional drinking water supplies were added to the RAL for THM issues. While the EPA does not welcome this increase, it reflects the proactive THM investigative work being done by Uisce Éireann in recent years. Uisce Éireann have completed a risk assessment of every supply in Ireland for THM formation potential. Sites that are considered higher risk have undergone an enhanced monitoring regime, beyond the levels required by regulation. This is the main reason for the increase in detections. Another factor in the increased levels of THM in the water supply system is the heavier rainfall events experienced in the last four years associated with climate change. These have increased the levels of organic matter in rivers and lakes, which are the main sources of drinking water in Ireland.

<sup>18</sup> Based on regulatory data only

The average levels of THMs in our drinking water exceedances have decreased over the last decade. In 2012 the average THM exceedance reported in Ireland was 157 ug/l and this has declined steadily. In 2023 the average THM exceedance is 125 ug/l. This is a good reflection of the ongoing works undertaken by Uisce Éireann to resolve this issue. (See Figure 3.7)



**Figure 3.7:** Average levels of THM reported exceedances by year in Ireland.

The EPA will continue to target THM compliance as part of their enforcement activities, and progress will be reported as part of the THM Infringement finding against Ireland.

The EPA can issue legally binding directions to Uisce Éireann under the Drinking Water Regulations. In total there are 7 open directions issued by the EPA relating to THM exceedances (a reduction from 10 at end of 2022). For further details on these open directions see [Appendix D](#). In 2023 the EPA prosecuted Uisce Éireann for failing to control THMs in 2 supplies (Kilkenny City (Radestown) Public Water Supply and the West Clare supply) - further details can be found on the EPA website<sup>19</sup>.

Failure to meet the THM standard for a public group scheme<sup>20</sup> may be due to the quality of the water supplied by the parent public supply or it may be that the THMs were formed in the public group scheme network.

In 2023 exceedances of the THM standard were found at 23 public group schemes across 3 counties – this is an increase since 2022 (see [Appendix E](#) for the full list). More than half of these failures are due to water sourced from a single supply - the West Clare Regional Water Supply. See Box 4 for further details.

<sup>19</sup> [www.epa.ie/our-services/compliance--enforcement/whats-happening/prosecutions-and-penalties/](http://www.epa.ie/our-services/compliance--enforcement/whats-happening/prosecutions-and-penalties/)

<sup>20</sup> A public group scheme, set up by the local community, manages the distribution of treated water to users. Uisce Éireann manages the abstraction and treatment of the water.

### **Box 4 THMs and the West Clare Regional Water Supply**

The West Clare Regional Water Supply (WCRS) is on the EPA RAL for THMs. The EPA issued a Direction to Uisce Éireann (in 2019) and prosecuted Uisce Éireann in 2023 for failing to resolve the THM issue at the WCRS.

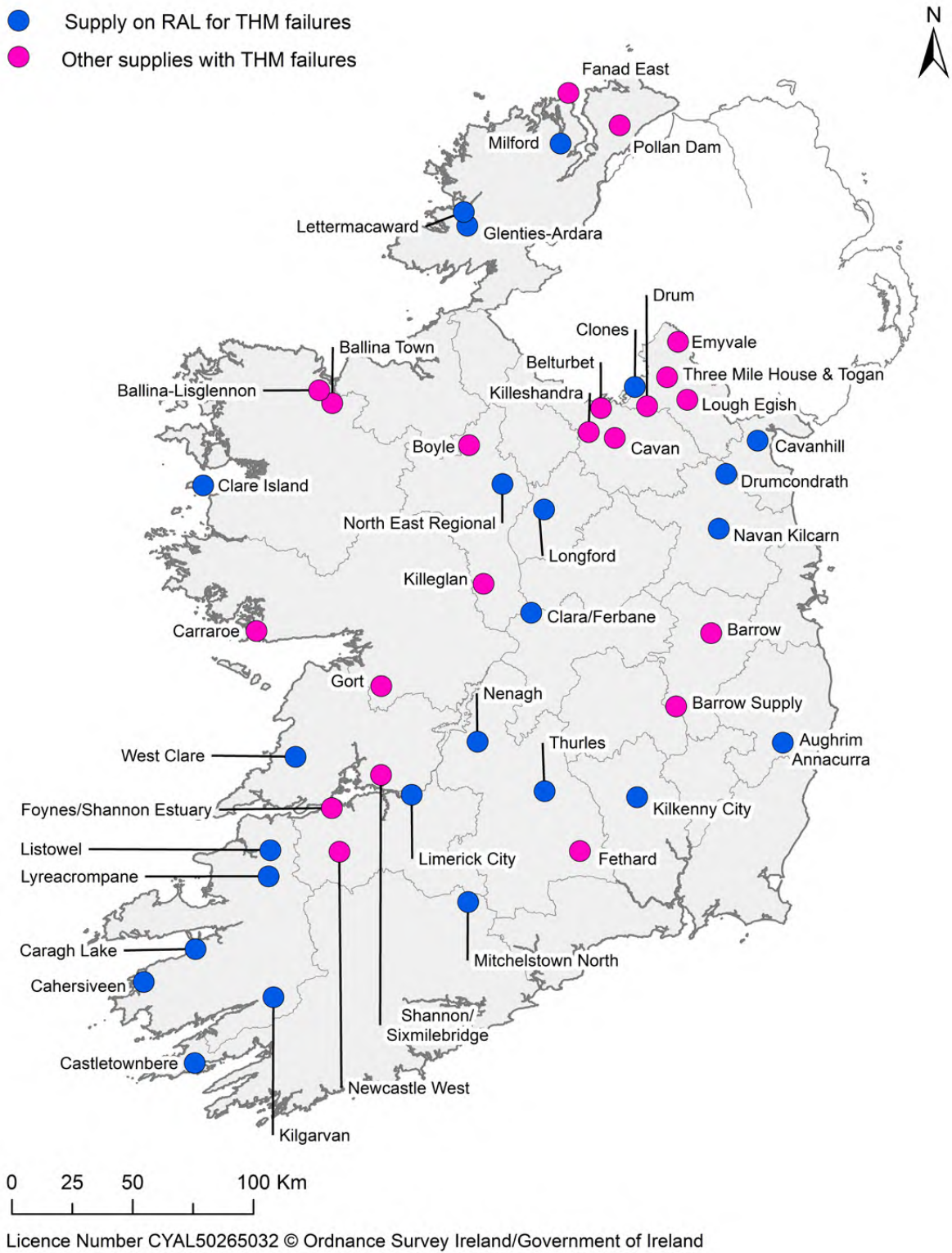
Upgrade works at the plant were carried out in 2022 and the supply now has treatment to remove THMs. While THM compliance at the plant has improved, the supply is still seeing exceedances in the network during 2023. It remains on the RAL and further work is needed to resolve this. Actions being taken include ongoing plant optimisation, reservoir cleaning and frequent flushing to clear the network. Its associated Public Group Water Schemes are expected to come into compliance after completion of reservoir cleaning and network flushing and a verification period.



**Part of West Clare Water Treatment plant**

### **Actions required**

- ▲ Uisce Éireann must address supplies on the RAL for persistent THM exceedances which have increased from 2022.
- ▲ Uisce Éireann must also address the breaches of the THM limits seen in 2023 in order to protect public health, and to ensure compliance with the THM standard in the Drinking Water Regulations.
- ▲ Uisce Éireann must comply with the requirements of the open THM related directions issued by the EPA within the timeframes outlined.
- ▲ Local authorities must investigate THM failures in public group schemes to determine whether the cause is the quality of the water from the parent supply or the conditions in the group scheme network, so that the appropriate corrective action is taken.



**Figure 3.8:** Public supplies on RAL for THM or with THM failures during 2023

## Pesticides

Pesticides were detected in twenty-three water supplies<sup>21</sup> in 2023, an increase from seventeen supplies in 2022. However, only one of these supplies is on the RAL for pesticides. The herbicide MCPA continues to dominate – causing over 50% of the failures, with a mix of other pesticides causing the others. There is one supply on the RAL for pesticides at the end of 2023 (see Figure 3.9) down from four in 2022. It is positive that 3 supplies were removed from the RAL under this category in 2023 – but this is tempered by the fact that more supplies had pesticide exceedances than in 2022<sup>22</sup>.

The primary strategic approach to reducing the risk of pesticides by Uisce Éireann is through catchment management. Supplies on the RAL for pesticide exceedances have Catchment Focus Groups in place. The Catchment Focus Group brings relevant stakeholders together to promote responsible pesticide use within those catchments – with the ultimate aim of resolving the issues at source before they reach the water supply.

One element of this strategy is communication by the focus groups, and during 2023 examples of such communication included:

- ▲ Farm visits including pesticide application advice
- ▲ Focussed communications e.g. letters and texts within a priority area
- ▲ Newspaper articles & radio interviews - highlighting particular pesticide issues in an area
- ▲ Localised social media campaigns such as *'Spray with care'*
- ▲ Educational school visits and the *'Plant a tree and be pesticide free'* campaign

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21 52 individual exceedances notified

22 An individual failure may not cause a supply to be put on the RAL – rather a pattern of failures detected.



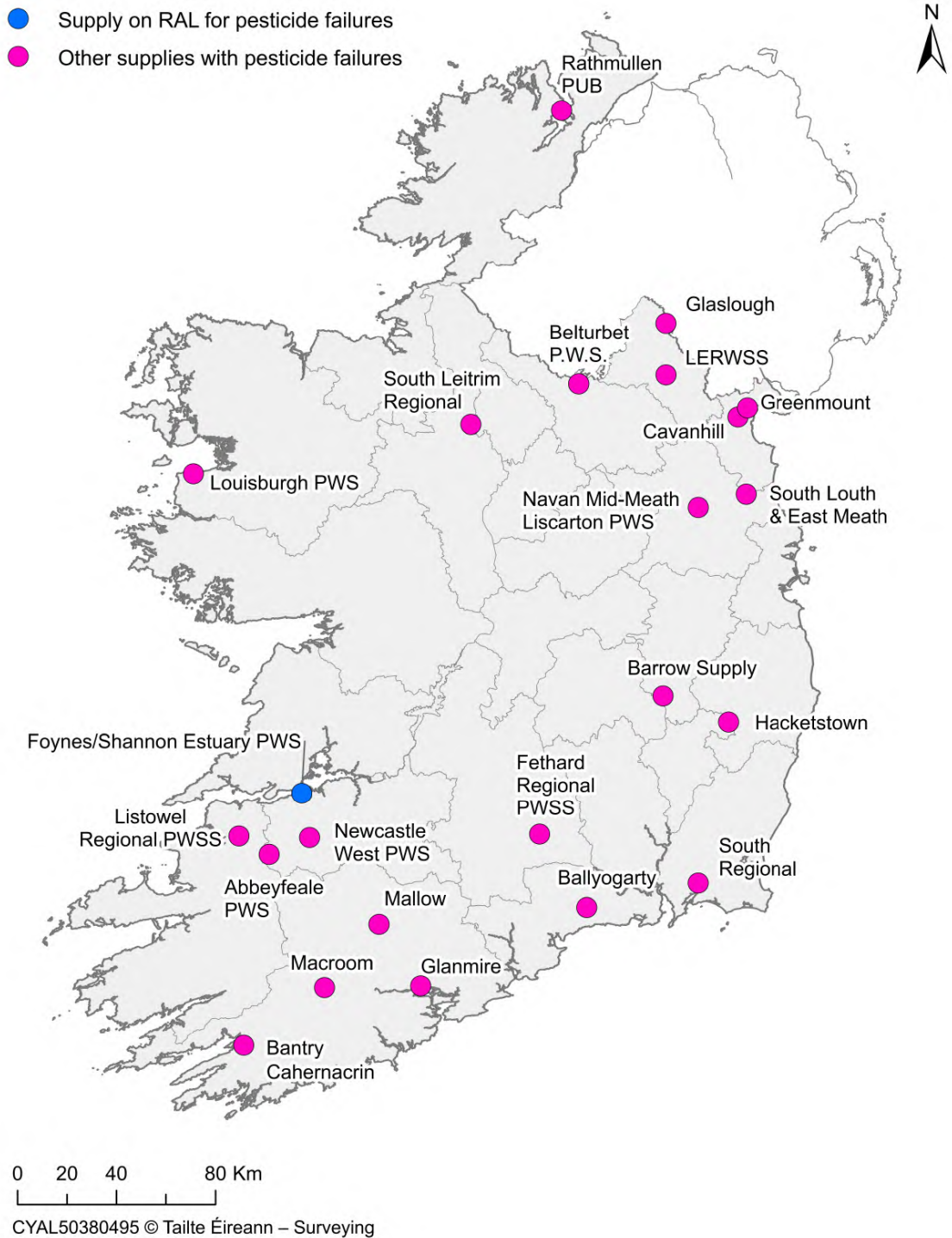
### ***Box 5 – Striking the balance when resolving water quality issues***

**Manganese improvements:** The Cavanhill supply is the main drinking water plant for the town of Dundalk, serving over 46,000 people. This supply has had Manganese (Mn) issues for a number of years. Manganese occurs naturally in soil, water and rocks and elevated levels can cause water discolouration, an unpleasant taste, and health issues in extreme cases. Plant optimisation trials were carried out to deal with this issue – including changes to flocculation and pH resulting in improvements of Mn levels.

The unintended consequence of adjusting the water treatment process to reduce the levels of Mn has been an increase in the formation of THMs – which is sensitive to temperature, pH and the presence of organics. Cavanhill is now on the RAL due to elevated THMs in the drinking water. In the case of this plant, it seems likely that Mn improvement actions have increased THM formation in the supply.



**Cavanhill WTP (Chemicals building)**



**Figure 3.9:** Supplies on the RAL for pesticides or with pesticides failures during 2023.

### Actions required

It is crucial that Uisce Éireann implement the catchment management approach, and where the catchment focus groups fail to achieve compliance, consider water treatment options. Stakeholders must effectively coordinate monitoring activities in the catchment to ensure that monitoring is as effective as possible and responds to changes in pesticide use patterns.

## Drinking Water Priority 4: Ensure that water treatment plants are operated effectively.

Persistent aluminium and turbidity failures indicate poor control over treatment processes. Control and management issues at supplies, such as issues with critical alarms and monitors, can result in situations where disinfection, protozoal removal/deactivation, or other processes are not optimised.

A supply may be placed on the RAL if aluminium or turbidity failures are persistent or if an EPA audit finds that treatment control or management issues pose a risk to reliable water treatment.



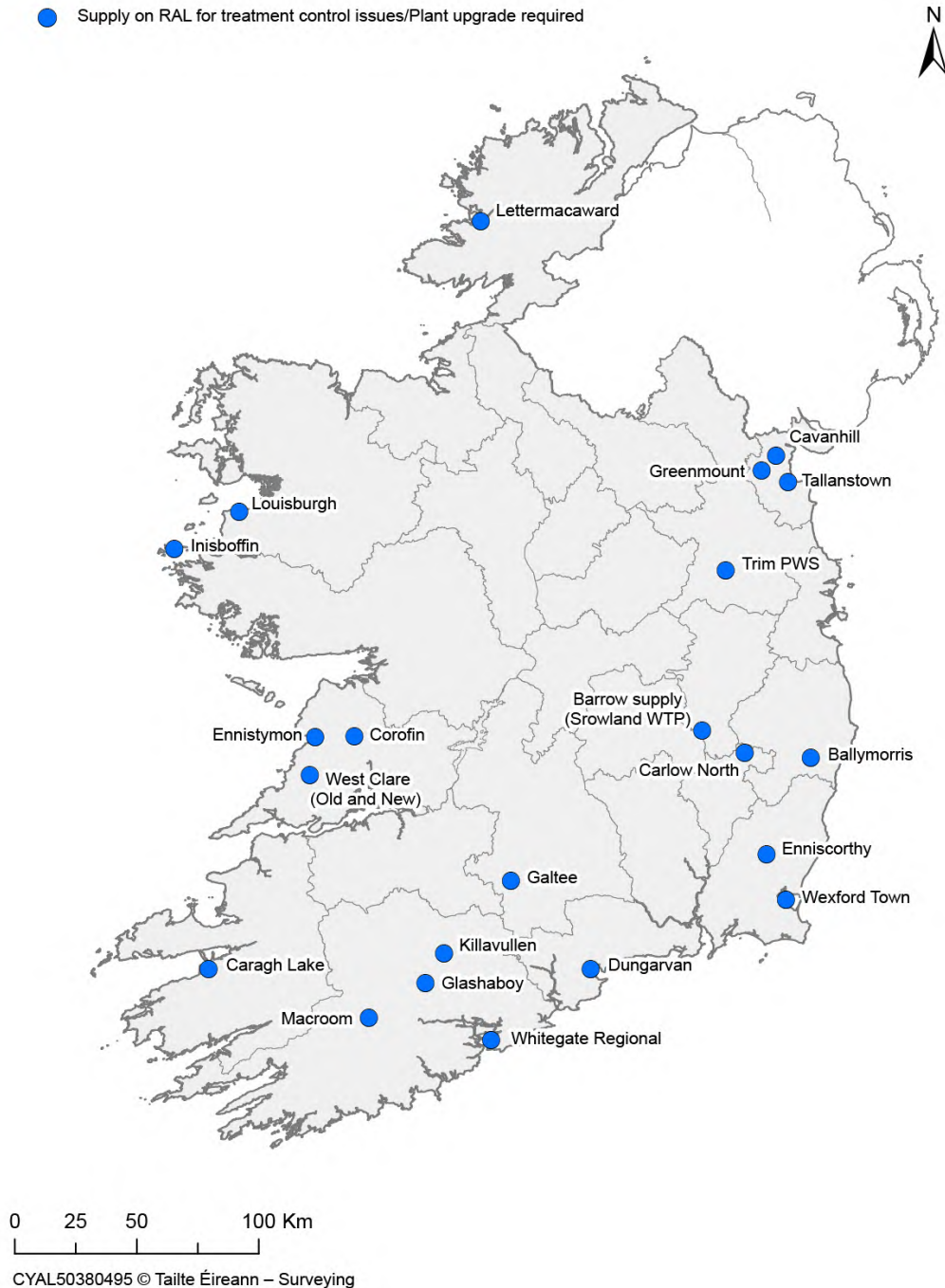
**Figure 3.10:** Water clarification - solids settle and clear water runs out in the channels



## Findings for 2023

At the end of 2023 there were 23 supplies on the RAL due to aluminium/turbidity issues or because of audit observations, serving over 270,000 people (similarly, 23 supplies in 2022) - with most of these issues being identified through audits (Figure 3.11).

The overall number of sites on the RAL for these reasons has shown little improvement – as sites are removed, more are detected to take their place. EPA audits continued to identify issues at water treatment plants that need to be addressed.



**Figure 3.11:** Supplies on the RAL during 2023 for treatment issues/plant upgrades required.

## Actions required

Uisce Éireann must ensure that consistent and documented operational control and management measures are in place at all supplies, including;

- ▲ Monitors and alarms with appropriate triggers in place and operational at all times;
- ▲ Staff trained and available to respond to alarms and incidents;
- ▲ Operational monitoring to assess plant performance on an ongoing basis.

Examples of the information sought and reviewed by the EPA during the audit process are presented in Figure 3.12.

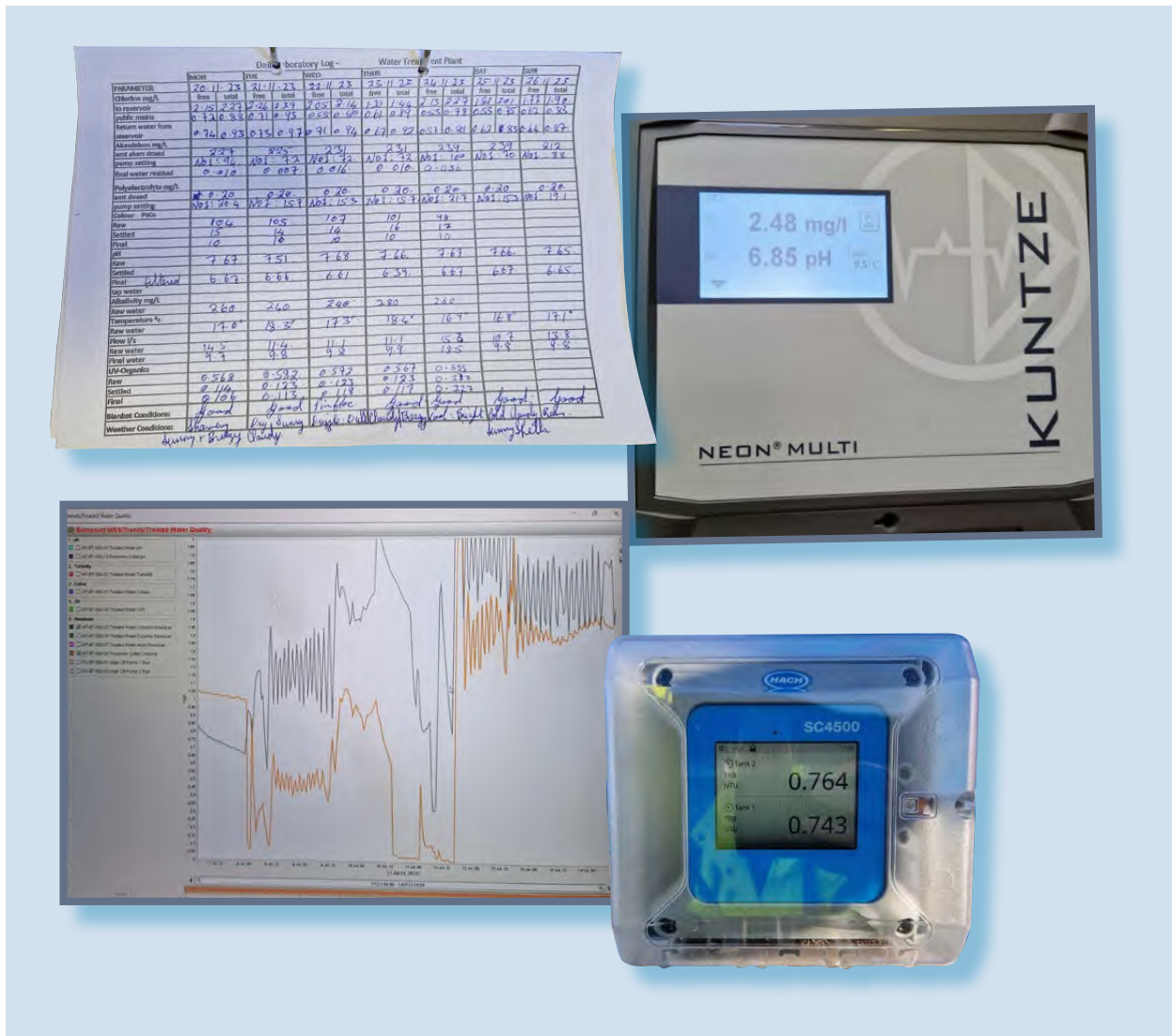


Figure 3.12: Examples of trends, records and control parameters reviewed during a site audit.

## 4. PROTECTION OF HUMAN HEALTH

### Boil water and water restriction notices

A failure or incident at a supply can put the water quality at risk. The Health Service Executive is responsible for public health and must be consulted by Uisce Éireann where a water quality failure or incident could result in a public health risk. In these events, a BWN or a WRN may be imposed.

It is critical that such failures or incidents are responded to promptly. Failure to adequately respond and take the appropriate actions up to and including the imposing of BWNs or WRNs can have a significant impact on public health. The consequences of consuming inadequately treated water can be very severe, particularly in vulnerable people, such as the young, the elderly, and those with underlying conditions.

While BWNs or WRNs cause inconvenience to consumers, they are necessary to ensure that members of the public do not consume water that could be contaminated and make them ill. Uisce Éireann must also take prompt action to ensure that the duration of the notice period is as short as possible.

**Boil water notices** - During 2023, 91 BWNs were in place at 67 supplies affecting almost 254,000<sup>23</sup> consumers. This is up from 79 in 2022 - affecting 182,000 consumers. (*Appendix F, Table 1*). It should be noted that 14 BWNs issued in 2023 were precautionary in nature, short-lived (1-8 days) and were issued due to industrial action in Waterford, Tipperary and Cork.

- ▲ 46 BWNs were in place for more than 30 days, with 10 of those in place for more than one year;
- ▲ 17 supplies had two or more BWNs issued within 2023 (up from 11 and 9 in 2022 and 2021, respectively).

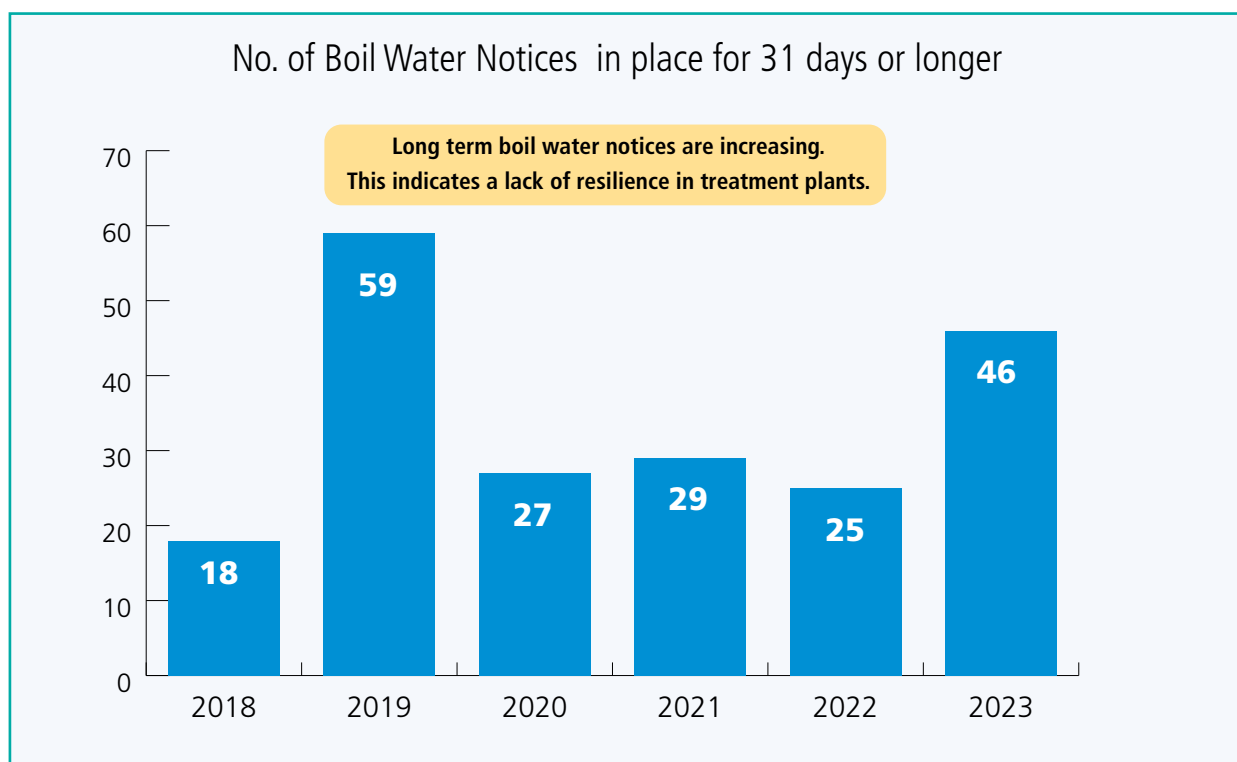
The 2015-2018 period saw an average of 40 BWNs issued annually – compared to 91 BWNs in 2023. Table 4.1 shows that there has been no overall reduction in BWNs despite the Uisce Éireann Disinfection Programme having commenced in 2016. EPA considers that Uisce Éireann’s ongoing improved incident awareness, escalation and management contributes to the increased number of BWNs.

<sup>23</sup> Note that where multiple notices are issued for the same supply during 2023 – the population affected is counted only once in ‘total population affected’ figures to avoid duplication.

**Table 4.1:** Boil Water Notices from 2018 to 2023.

Year	Number of notices in place	In place for 31 days or longer <sup>24</sup>	Total population affected during year
2018	44	18	97,200
2019	68	59	696,900 <sup>25</sup>
2020	43	27	75,000
2021	70	29	211,000
2022	79	25	182,000
2023	91 (14 due to industrial action)	46	254,000

The recent trend of significantly more long-term BWNs must be reversed by Uisce Éireann (see Figure 4.1). Uisce Éireann must improve the performance and resilience of plants thereby reducing the need for BWN's.

**Figure 4.1:** Long term Boil Water Notices from 2018 to 2023.

While compliance with drinking water standards (chemical & microbiological parameters) has remained consistently high over recent years, the trend has been for an increasing number of BWNs to be issued. While the EPA do not want to see the number of BWNs increasing in particular, they are essential to protect public health when supplies are compromised. This is considered a positive development, as increased vigilance, better awareness of escalation procedures, and more targeted monitoring by Uisce Éireann will result in a safer water supply for all consumers.

<sup>24</sup> As of 31/12/23.

<sup>25</sup> This includes the 657,000 people supplied by Leixlip water treatment plant, affected by two notices in 2019.

However, it is important to note that the EPA expects to see the number of BWNs reduce. This is expected as a result of the progression of Uisce Éireann’s Disinfection Programme, and improved incident detection and management. The DWSP approach will serve Uisce Éireann in directing investment where it will deal with the most significant risks such as supplies listed on the RAL and supplies subject to BWNs and WRNs.

It is noteworthy that the HSE hosted workshops in 2023/2024 regarding the issuing of Boil Water Notices and Water Restrictions. These workshops served to review the issues considered and reinforce the process for issuing such notices. Attendees included water suppliers (Uisce Éireann), regulators (EPA) and the HSE.

**Water restriction notices** - During 2023, 12 **WRNs** were in place on 12 supplies across 8 counties, affecting over 2,500 people (see Table 4.2 and *Appendix F, Table 2*). Six of these notices were in place for more than 30 days.

**Table 4.2:** Water Restriction Notices from 2018 to 2023

Year	Number of notices	In place for > 30 days <sup>26</sup>	Total population affected during year
2018	15	7	14,600
2019	8	4	9,200
2020	17	10	4,200
2021	26	9	17,900
2022	10	7	8,700
2023	12	6	2,500

Reasons for these notices include:

- ▲ Manganese issues in 7 supplies. Manganese is found naturally in many surface water and groundwater sources. Water passing through soil and rock can dissolve minerals containing manganese.
- ▲ A mix of nitrate, and turbidity/water quality in others.

At the end of 2023, 3 WRNs were still in place affecting over 40 people - along with a long-standing water restriction in Ballydermody, Co. Waterford which is a disputed supply between Uisce Éireann and the local authority.

Actions required
▲ Uisce Éireann must continue to progress its disinfection programme.
▲ Uisce Éireann must continue to improve its incident detection and management.
▲ Uisce Éireann must better understand the factors leading to the issuing of BWNs generally and repeat BWNs in particular.
▲ Uisce Éireann should use the DWSP approach to prevent BWNs and WRNs.

<sup>26</sup> As of 31/12/22.



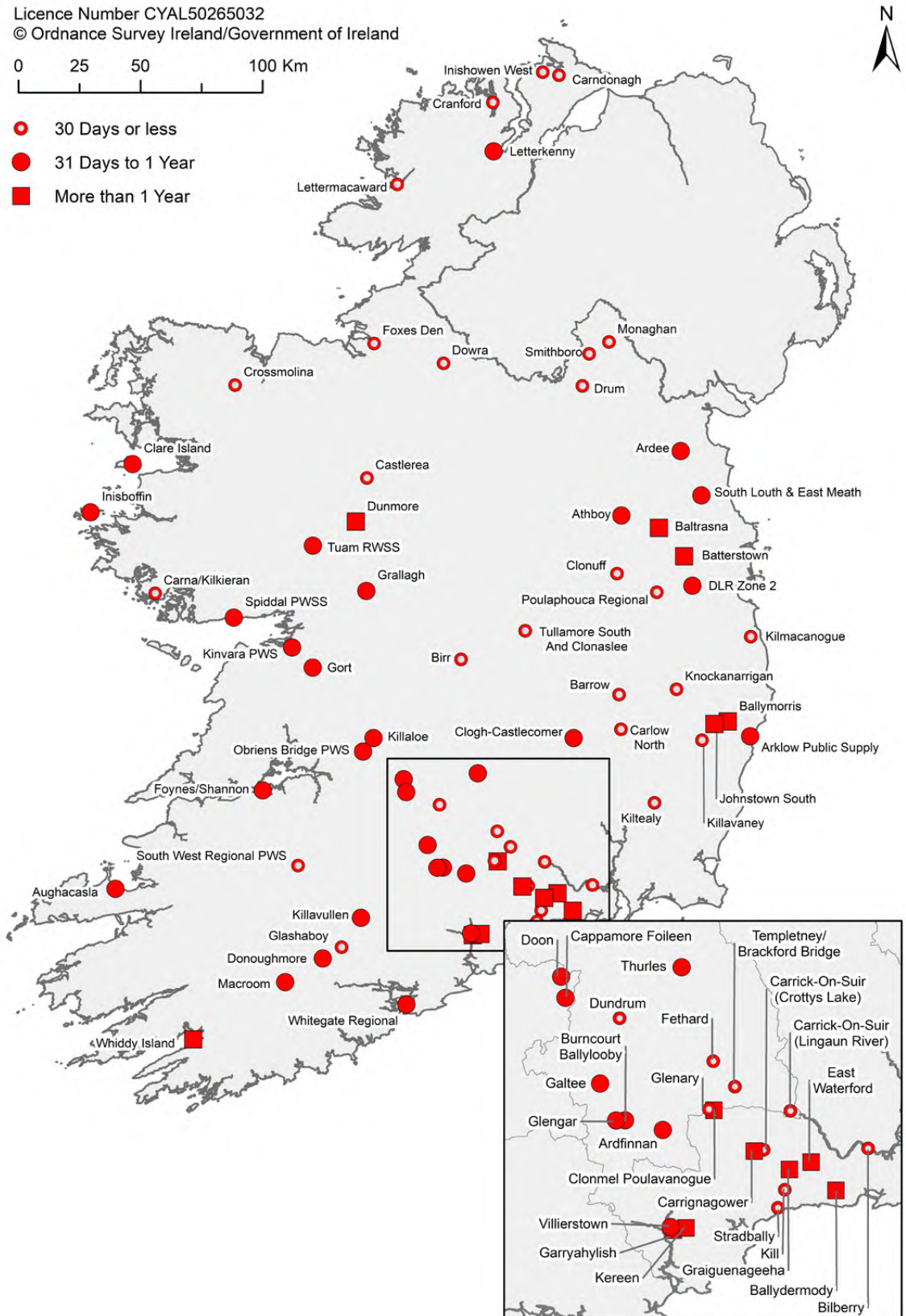


Figure 4.2: Supplies (incl. duration) with notices (Boil Water/Water Restriction) in place in 2023

## Reducing exposure to lead

The Irish Government published a [National Lead Strategy](#)<sup>27</sup> in June 2015. The strategy sets out actions to reduce people’s exposure to lead from lead piping or connections in buildings and homes, and these actions are reported on by the Department of Housing, Planning and Local Government/Department of Health.

In May 2017, Uisce Éireann published its [Lead in Drinking Water Mitigation Plan](#)<sup>28</sup> which set out Uisce Éireann’s plan to achieve the removal of all public side lead pipework (see Figure 4.3) by 2026. Uisce Éireann estimated that there were 180,000 lead service connections, comprising of 140,000 connections from water mains and 40,000 backyard service connections.

The new Drinking Water Directive (EU) 2020/2184 was transposed into Irish law in 2023<sup>29</sup> and includes a reduction in the lead limit from 10 µg/l to 5 µg/l in January 2036. Compliance with this limit will most likely not be achieved without the replacement of all lead connections.

## Findings for 2023

The Department of Housing, Planning and Local Government has not yet published a report on progress with the National Lead Strategy, so the number and location of public buildings affected, the number of people exposed, and plans to remove lead are still not known. The necessity to finalise and publish this report has been highlighted in previous EPA reports. Following engagement with the Department during 2023, the E23PA’s expectation is that work will commence on this in 2024.

The [Lead Remediation Grant Scheme](#) was changed during 2023 was made easier for the public to get and the level of financial support enhanced and this is welcomed by the EPA. By next year it should become clearer if this is improving uptake.

The slow progress by Uisce Éireann in the removal of lead connections in the public network continues. In 2023, Uisce Éireann replaced over 9,500 lead connections (over 10,000 in 2022), bringing the total number of replacements to approx. 61,000 out of approximately 180,000. It should be noted that the original target estimate of 180,000 was made a number of years ago and is likely to have been an overestimate. Nevertheless, at this rate, Uisce Éireann is highly unlikely to meet its commitment to remove all public-side lead pipework by 2026.

Orthophosphate (OP) dosing to reduce the solubility of lead from pipework is in place at 10 supplies – up significantly from 3 in 2022. OP dosing commenced at these 7 supplies in 2023:

- ▲ Adamstown WTP - Co. Waterford
- ▲ Swinford WTP - Co. Mayo
- ▲ Portloman WTP- Co. Westmeath
- ▲ Gort WTP - Co. Galway
- ▲ Sandyhill reservoir - Westport, Co. Mayo
- ▲ Ballymacool & Crolly WTPs - Co. Donegal

27

28 Available at <https://www.water.ie/projects-plans/our-plans/lead-mitigation-plan/>

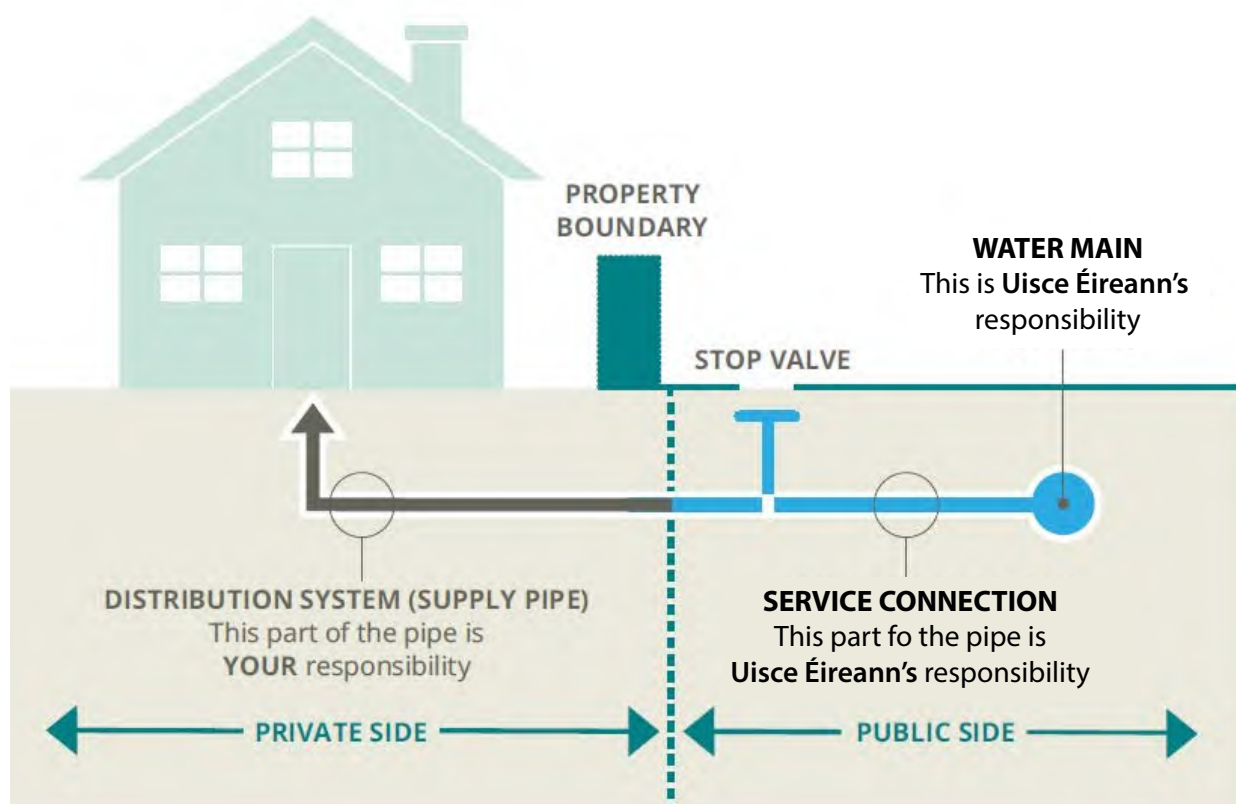
29 [European Union Drinking Water Regulations 2023, S.I 99 of 2023](#)

The 10 operational OP supplies serve over 97,000 properties. There are 14 additional plants where OP-dosing is installed but not yet operational – with a further number of supplies at varying stages of development from initial desktop assessment to construction. A dedicated Uisce Éireann team has been assigned to drive this issue.

The forthcoming reduced lead limit from the Drinking Water Directive, the slow rate of lead replacement, and the lack of updates under the National Lead Strategy, emphasises the need for more leadership at a national level. These works must not be delayed further as they are the only sustainable way to reduce people’s exposure to lead in drinking water.

## Actions required

- ▲ Progress to remove lead from drinking water networks by Uisce Éireann under their Mitigation Plan is too slow and must be accelerated.
- ▲ Leadership is required at a national level by the Department of Housing, Local Government and Heritage/Department of Health under the National Lead Strategy to address lead replacement. A report on progress towards carrying out the actions within the National Lead Strategy and more specifically on assessments of lead pipework in public buildings and plans for removal is long overdue.
- ▲ Homeowners should identify and replace any lead pipes in their properties (the Lead Remediation Grant Scheme to remove lead piping has been made easier to access and the financial support improved).



**Figure 4.3:** Responsibility for water distribution systems (graphic courtesy of Uisce Éireann)



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## Drinking Water Safety Plans

The new Drinking Water Directive (EU) 2020/2184 was transposed into Irish law in 2023 and these regulations put the requirement for Drinking Water Safety Plans (DWSP) on a statutory footing. Requirements include putting a full water safety plan approach in place for supplies by January 2029. The plans are required to cover the whole water supply chain from source to tap.

Uisce Éireann are in the process of putting DWSP in place for all public supplies. Uisce Éireann uses DWSPs to identify and target the risks to our public water supplies and they are a proactive approach to ensuring that a water supply is not only **safe**, but also **secure**. This provides greater certainty for the consumer that their drinking water supply will remain safe to drink and is resilient. A DWSP 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).

Where the findings of Drinking Water Safety Plans are implemented, this will serve to increase the resilience of these water supplies. This will address many of the issues raised in this report such as those arising in the catchment (e.g. pesticides/organic pollution of sources/bacterial contamination), in the plant itself (e.g. breakdown of chlorination disinfection/filtration problems/THM generation) or in the network (e.g. inadequate secondary chlorination in the network or network contamination).

This assessment is made at each step in the water supply process, from the water's source all the way to the consumer's tap. The aim is to identify, manage and mitigate risk. Uisce Éireann is assessing all public water supplies. Once risks are identified, actions must be taken to mitigate those risks. A national overview ensures the highest risks are dealt with first, under the relevant Uisce Éireann programmes.

The DWSPs produced by Uisce Éireann must, as a minimum, meet the standards set. Implementation of the DWSP approach is a proactive way to reduce or eliminate the risk of supplies ending up on the RAL. It also provides a robust structure to direct investment towards dealing with the highest risks in terms of the protection of public health.



**Figure 4.4:** Inspection of water treatment plant dosing equipment

## Findings for 2023

Uisce Éireann is committed to the Drinking Water Safety Plan approach. Uisce Éireann latest report shows they have substantially completed DWSPs for 220 water supply zones (from 212 in 2022) which supply over 85% of consumers (almost 3 million people). EPA welcomes this progress by Uisce Éireann in rolling out the Drinking Water Safety Plan approach in advance of it becoming a legal requirement. EPA also welcomes the formation of a dedicated team to progress the DWSP approach within Uisce Éireann over 2023/2024.

## Actions required

Uisce Éireann needs to continue to progress Drinking Water Safety Plan assessments to identify risks at drinking water supplies and to safeguard the long-term resilience of water supplies. Where assessments have been completed, Uisce Éireann must ensure the highest risks identified are prioritised for action so that they can be addressed in a timely manner.

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## 5. CONCLUDING REMARKS

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The quality of drinking water in public supplies and public group water schemes remained very high in 2023.

However, Uisce Éireann must improve the overall resilience of the water treatment system by carrying out the following key actions:

- ▲ Complete upgrades to resolve the drinking water supplies on the RAL to address issues such as THM and *Cryptosporidium*. without delay.
- ▲ Ensure existing infrastructure is operated effectively to ensure its resilience in meeting drinking water quality standards.

The DHLGH<sup>30</sup>/Department of Health must publish a plan to address lead piping in public buildings to protect public health.

Improving the resilience of supplies, implementing Drinking Water Safety Plans (DWSP) findings and meeting the new more stringent requirements of the drinking water regulations will require corresponding sustained national investment.

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30 Department of Housing, Local Government and Heritage

## APPENDIX A REMEDIAL ACTION LIST AT THE END OF 2023

County	Supply	Population	Date supply put on RAL	Completion date for action plan	Reason/Action proposed
Carlow	Carlow North Regional	8,460	Q2 2021	December 2024	Upgrade of water treatment plant
Clare	Ennistymon RWS	6,492	Q4 2015	September 2024	Upgrade of water treatment plant
Clare	Corofin	1,319	Q4 2015	Complete and awaiting verification of the effectiveness of the action programme	Upgrade of water treatment plant
Clare	West Clare RWS (Old WTP)	3,028	Q2 2021	December 2026	Existing plant to be replaced with new package plant.
Clare	West Clare RWS (New WTP)	8,702	Q3 2017	To be submitted by Uisce Éireann	Action Programme being defined by Uisce Éireann
Cork	Fermoy	7,381	Q2 2023	To be submitted by Uisce Éireann	Installation of UV disinfection
Cork	Killavullen	791	Q2 2022	March 2024	Rationalisation of supply
Cork	Ballyclough & Mount North	1,977	Q2 2023	To be submitted by Uisce Éireann	Disinfection upgrade for Mountnorth WTP
Cork	Mitchelstown North	2,317	Q4 2021	June 2025	Installation of GAC activated carbon system for removal of organics to minimise THM formation
Cork	Newmarket	9724	Q2 2023	June 2024	Action Programme being defined by Uisce Éireann
Cork	Macroom	4,237	Q2 2023	To be submitted by Uisce Éireann	Upgrade water treatment plant
Cork	Whitegate Regional	9,011	Q1 2021	June 2027	Upgrade of water treatment plant
Cork	Glashaboy	23,087	Q1 2020	June 2025	Upgrade of water treatment plant

County	Supply	Population	Date supply put on RAL	Completion date for action plan	Reason/Action proposed
Cork	Whiddy Island	47	Q2 2022	To be submitted by Uisce Éireann	Action Programme being defined by Uisce Éireann
Cork	Castletownbere	2,328	Q4 2021	December 2028	installation of GAC for removal of organics to minimise THM formation.
Donegal	Milford	3,714	Q4 2021	June 2026	Upgrade of filtration including GAC
Donegal	Lettermacaward	2,266	Q2 2022	December 2024	Upgrade of water treatment plant.
Donegal	Glenties-Ardara	3,518	2008	September 2024	Installation of membrane filtration system to address the raw water colour and organic content, and minimise THM formation
Galway	Inisboffin	156	Q2 2022	To be submitted by Uisce Éireann	Action Programme being defined by Uisce Éireann
Kerry	Lyreacrompane	2,490	Q2 2022	December 2029	Develop new groundwater sources and upgrade of water treatment plant
Kerry	Caragh Lake	1,886	2008	THM Risk: Complete and awaiting verification of the effectiveness of the action programme. EPA Audit Observations: December 2024	Upgrade of water treatment plant.
Kerry	Cahersiveen	1,500	Q4 2019	EPA Direction required compliance with THM limit by December 2023. Uisce Éireann proposed completion date for THM and crypto risk is June 2024.	Crypto risk: Installation of UV disinfection. THM risk: Installation of GAC post slow sand filtration.
Kerry	Kilgarvan	656	Q1 2021	December 2024	Installation of GAC post slow sand filters
Kerry	Mid Kerry/Gearha (H) 300A	9,207	Q4 2022	Complete and awaiting verification of the effectiveness of the action programme	To be submitted by Uisce Éireann

County	Supply	Population	Date supply put on RAL	Completion date for action plan	Reason/Action proposed
Kerry	Listowel Regional Public Water Supply	14,905	Q2 2022	To be submitted by Uisce Éireann	Action Programme being defined by Uisce Éireann
Kildare	Barrow supply (Srowland WTP)	80,592	Q2 2022	December 2026	Upgrade of Srowland WTP
Kilkenny	Kilkenny City (Radestown) WS	14,162	2008	EPA Direction required compliance by June 2022. Uisce Éireann has provided a proposed completion date of March 2024.	Abandon source of water supply and replace with Troyswood PWS
Kilkenny	South Kilkenny	6,028	Q4 2022	December 2024	Action Programme being defined by Uisce Éireann
Limerick	Foynes/Shannon Estuary PWS	6,986	Q4 2020	Pesticides risk: EPA Direction required compliance by April 2023. Crypto risk: March 2024.	Pesticides risk: To be submitted by Uisce Éireann. Crypto risk: Installation of UV.
Limerick	Limerick City Environs	114,764	Q2 2022	To be submitted by Uisce Éireann	Action Programme being defined by Uisce Éireann
Longford	Longford Central	17,354	Q1 2020	To be submitted by Uisce Éireann	Action Programme being defined by Uisce Éireann
Louth	Greenmount	3,836	Q2 2019	September 2026	Upgrade of treatment facilities.
Louth	Tallanstown	2,010	Q3 2019	EPA Direction required compliance by December 2020. Uisce Éireann has provided a proposed completion date of June 2024.	Replacement of supply with Cavanhill PWS
Louth	Cavanhill	46,730	Q4 2022	June 2025	To be submitted by Uisce Éireann
Mayo	Louisburgh	824	Q3 2021	November 2028	Abandon source and connect to Westport PWS (via Murrisk Group Water Scheme)
Mayo	Clare Island	160	Q4 2022	March 2027	To be submitted by Uisce Éireann



County	Supply	Population	Date supply put on RAL	Completion date for action plan	Reason/Action proposed
Meath	Drumcondrath	1,151	Q3 2015	EPA Direction required compliance by June 2023. Uisce Éireann has provided a proposed completion date of June 2026.	Develop new groundwater sources and upgrade water treatment plant
Meath	Trim PWS	11,244	Q4 2021	December 2025	Upgrade of water treatment plant
Meath	Navan - Mid Meath Kilcarn PWS	10,360	2008	June 2026	Replace DAFF with new CFC and filtration.
Monaghan	Clones	2,658	Q4 2022	March 2026	To be submitted by Uisce Éireann
Offaly	Clara/Ferbane RWSS	7,341	Q2 2019	June 2024	Upgrade of water treatment plant
Roscommon	North East Regional	7,997	Q4 2021	March 2025	Process review/optimisation/trial as well as network/reservoir cleaning and scouring.
Tipperary	Nenagh Regional	14,483	Q2 2021	To be submitted by Uisce Éireann	Action Programme being defined by Uisce Éireann
Tipperary	Roscrea	6,103	Q4 2022	June 2028	Upgrade of water treatment plant.
Tipperary	Templetuohy	799	Q4 2023	To be submitted by Uisce Éireann	Upgrade of water treatment plant.
Tipperary	Carrick-on-Suir (Lingaun River)	3,784	Q4 2023	To be submitted by Uisce Éireann	To be submitted by Uisce Éireann
Tipperary	Clonmel Poulavanogue	2,435	2008	December 2026	Rationalisation of water treatment plant
Tipperary	Galtee Regional	11,379	Q3 2019	March 2027	Further upgrade of water treatment plant
Tipperary	Kilcash	221	Q4 2023	To be submitted by Uisce Éireann	Rationalisation of supply
Tipperary	Glengar	470	Q4 2023	To be submitted by Uisce Éireann	Rationalisation of supply
Tipperary	Thurles Regional	11,394	Q4 2023	To be submitted by Uisce Éireann	Action Programme being defined by Uisce Éireann

County	Supply	Population	Date supply put on RAL	Completion date for action plan	Reason/Action proposed
Waterford	Dungarvan	12,687	Q3 2020	May 2027	Construction of new water treatment plant
Waterford	Graiguenageeha	43	Q2 2022	June 2024	Abandon source and connect to Stradbally PWS
Wexford	Enniscorthy	11,448	Q2 2022	June 2025	Upgrade of water treatment plant.
Wexford	Wexford Town	20,853	Q4 2021	June 2025	Upgrade of water treatment plant
Wicklow	Aughrim / Annacurra	1,583	2008	Works complete and awaiting verification of the effectiveness of the action programme.	Abandon source and connect to Arklow water treatment plant
Wicklow	Ballymorris	16	Q1 2021	January 2024	Abandon source and connect to Arklow water treatment plant

## APPENDIX B MONITORING AND COMPLIANCE SUMMARY FOR PUBLIC WATER SUPPLIES IN 2023

Parameter	Sum of No. of WSZ Monitored	Sum of No of WSZ with Exceedances	Sum of No. of Samples Analysed	Sum of No. of Samples Exceeding	% of WSZ Complying	% of Samples Complying
<b>Microbiological</b>						
<i>E. coli</i>	726	4	7992	4	99.45	99.95
<i>Enterococci</i>	726	19	7305	19	97.38	99.74
<b>Chemical</b>						
1,2-dichloroethane	629	0	1027	0	100.00	100.00
Antimony	629	0	1029	0	100.00	100.00
Arsenic	629	0	1032	0	100.00	100.00
Benzene	629	0	1027	0	100.00	100.00
Benzo(a)pyrene	577	0	962	0	100.00	100.00
Boron	629	0	1029	0	100.00	100.00
Bromate	629	0	1035	0	100.00	100.00
Cadmium	629	0	1029	0	100.00	100.00
Chromium	629	0	1029	0	100.00	100.00
Copper	629	2	1032	2	99.68	99.81
Cyanide	618	0	1026	0	100.00	100.00
Fluoride	629	0	1029	0	100.00	100.00
Lead	623	17	1030	19	97.27	98.16
Mercury	629	1	1029	1	99.84	99.90
Nickel	617	3	1011	3	99.51	99.70
Nitrate	643	12	1088	14	98.13	98.71
Nitrite (at tap)	642	0	1164	0	100.00	100.00
PAH	625	0	1019	0	100.00	100.00
Pesticides - Total	626	1	1022	1	99.84	99.90
Selenium	626	0	1018	0	100.00	100.00
Tetrachloroethene & Trichloroethene	629	0	1027	0	100.00	100.00
Trihalomethanes(Total)	629	36	1027	46	94.28	95.52

Parameter	Sum of No. of WSZ Monitored	Sum of No of WSZ with Exceedances	Sum of No. of Samples Analysed	Sum of No. of Samples Exceeding	% of WSZ Complying	% of Samples Complying
<b>Indicator</b>						
Aluminium	644	29	6198	37	95.50	99.40
Ammonium	641	0	1185	0	100.00	100.00
Chloride	629	1	1029	1	99.84	99.90
Clostridium Perfringens	620	1	1073	1	99.84	99.91
Coliform Bacteria	726	58	7977	71	92.01	99.11
Colony Count @ 22°C	726	100	7000	134	86.23	98.09
Colour	726	44	7988	89	93.94	98.89
Conductivity	726	0	7959	0	100.00	100.00
Iron	726	48	7985	78	93.39	99.02
Manganese	643	15	1131	17	97.67	98.50
Odour	722	0	7144	0	100.00	100.00
pH	726	127	7994	279	82.51	96.51
Sodium	629	0	1029	0	100.00	100.00
Sulphate	629	0	1029	0	100.00	100.00
Taste	726	0	7219	0	100.00	100.00
Total Organic Carbon	628	6	1026	6	99.04	99.42
Turbidity (at tap)	726	9	7990	12	98.76	99.85

## APPENDIX C MONITORING AND COMPLIANCE SUMMARY FOR PUBLIC GROUP WATER SUPPLIES IN 2023

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>	346	1	99.71	773	1	99.87
<i>Enterococci</i>	236	1	99.58	498	1	99.80
<b>Chemical</b>						
1,2-dichloroethane	110	0	100.00	110	0	100.00
Antimony	110	0	100.00	112	0	100.00
Arsenic	118	0	100.00	120	0	100.00
Benzene	110	0	100.00	110	0	100.00
Benzo(a)pyrene	110	0	100.00	110	0	100.00
Boron	111	0	100.00	112	0	100.00
Bromate	118	0	100.00	118	0	100.00
Cadmium	110	0	100.00	113	0	100.00
Chromium	110	0	100.00	113	0	100.00
Copper	118	0	100.00	121	0	100.00
Cyanide	118	0	100.00	118	0	100.00
Fluoride	127	0	100.00	130	0	97.69
Lead	134	0	100.00	137	0	100.00
Mercury	110	0	100.00	110	0	100.00
Nickel	118	0	100.00	121	0	100.00
Nitrate	176	0	100.00	179	0	100.00
Nitrite (at tap)	194	0	100.00	312	0	100.00
PAH	110	0	100.00	110	0	100.00
Pesticides - Total	110	0	100.00	110	0	100.00
Selenium	110	0	100.00	113	0	100.00
Tetrachloroethene & Trichloroethene	110	0	100.00	110	0	100.00
Trihalomethanes (Total)	154	23	85.06	165	24	85.45

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>Indicator</b>						
Aluminium	312	6	98.08	668	9	98.65
Ammonium	183	0	100.00	301	0	100.00
Chloride	118	0	100.00	121	0	100.00
Clostridium Perfringens	152	0	100.00	153	0	100.00
Coliform Bacteria	346	9	97.40	774	10	98.71
Colony Count @ 22°C	343	8	97.67	746	9	98.79
Colour	346	14	95.95	775	16	97.94
Conductivity	346	0	100.00	775	0	100.00
Iron	328	14	95.73	700	16	97.71
Manganese	193	3	98.45	221	3	98.64
Odour	340	0	100.00	797	0	100.00
pH	346	3	99.13	775	4	99.48
Sodium	133	0	100.00	136	0	100.00
Sulphate	118	0	100.00	121	0	100.00
Taste	340	0	100.00	796	0	100.00
Total Organic Carbon	118	2	98.31	118	2	98.31
Turbidity (at tap)	346	3	99.13	775	3	99.61



## APPENDIX D DIRECTIONS OPEN AT THE END OF 2023

Water Supply Zone Name	County	Issue	Date for Compliance with Direction and current status.
West Clare RWS (New WTP)	Clare	Trihalomethanes	<b>31/12/2021</b> Work had been completed – however this proved to be unsuccessful in resolving the THM issue. A new action programme is being defined by Uisce Éireann, and a completion date is to be submitted.
Kilkenny City (Radestown) PWS	Kilkenny	Trihalomethanes	<b>30/06/2022</b> Decommissioning and connection to new supply expected 2024.
Drumcondrath	Meath	Trihalomethanes	<b>30/06/2023</b> Uisce Éireann has provided a proposed completion date of June 2026.
Aughrim Annacurra Public Supply	Wicklow	Trihalomethanes	<b>31/12/2023</b> Work has been completed - awaiting verification of the effectiveness of the action programme.
Caragh Lake PWS 022A	Kerry	Trihalomethanes	<b>30/06/2022</b> Work has been completed - awaiting verification of the effectiveness of the action programme.
Cahersiveen PWS 017H	Kerry	Trihalomethanes	<b>31/12/2023</b> Uisce Éireann proposed completion date for THM issue is June 2024.
Clara/Ferbane PWS	Offaly	Trihalomethanes	<b>30/06/2024</b> Uisce Éireann proposed completion date for THM issue is June 2024.
Fingal Zone 1	Dublin	Giardia/Crypto	<b>30/06/2023</b> Uisce Éireann are progressing plant upgrades with an estimated completion date of Quarter 3, 2024
Foynes/Shannon Estuary PWS	Limerick	Pesticide exceedances	<b>30/04/2023</b> Deadline passed – Catchment work being done to achieve compliance
Tallanstown	Louth	Treatment plant issues	<b>31/12/2020</b> Deadline passed - Uisce Éireann has provided a proposed completion date of June 2024

## APPENDIX E PUBLIC GROUP SCHEMES TRIHALOMETHANE FAILURES IN 2023

County	Public group scheme name	Supplied by public scheme
Clare County Council	Rathfolan PuGWS	Shannon Sixmilebridge PWSS
Clare County Council	Knocknagoug	Shannon Sixmilebridge PWSS
Clare County Council	Manusmore	Shannon Sixmilebridge PWSS
Clare County Council	Moyasta	West Clare RWSS
Clare County Council	Dunsallagh, Killeran	West Clare RWSS
Clare County Council	Glendine	West Clare RWSS
Clare County Council	Clonadrum	West Clare RWSS
Clare County Council	Ballymakea	West Clare RWSS
Clare County Council	Tullabrack	West Clare RWSS
Clare County Council	Cross, Kilbaha	West Clare RWSS
Clare County Council	Rahone	West Clare RWSS
Clare County Council	Tiernaglohane	West Clare RWSS
Clare County Council	Doonmore No.2	West Clare RWSS
Clare County Council	Ballinagun West, Drumellihiy	West Clare RWSS
Clare County Council	Clohanmore/Clohanbeg	West Clare RWSS
Clare County Council	Schragh	West Clare RWSS
Clare County Council	Silverhill/Glendine	West Clare RWSS
Leitrim County Council	Glenboy/Glenfarne	North Leitrim Regional Supply Scheme
Mayo County Council	Elly/Blacksod	Erris RWSS
Mayo County Council	Comminch	Erris RWSS
Mayo County Council	Glencastle	Erris RWSS
Mayo County Council	Valley	Achill Public Water Supply
Mayo County Council	Kilkelly Road	Kiltimagh Public Water Supply

## APPENDIX F BOIL WATER AND WATER RESTRICTION NOTICES IN PLACE DURING 2023

Table 1: Boil Water Notices in place during 2023

County	Scheme Name	Reason	Date Notice Issued	Date Notice Lifted (N/L = not lifted as of 1/1/24)	Population Affected by Notice
Carlow	Carlow North Regional	Turbidity	13/03/2023	16/03/2023	8460
Clare	Killaloe PWS	Inadequate disinfection	17/09/2023	08/11/2023	1788
Clare	Obriens Bridge PWS	UV system problem	25/08/2023	19/10/2023	944
Cork	Donoughmore	Inadequate disinfection	12/10/2023	04/12/2023	867
Cork	Glashaboy	<b>Industrial Action</b> - Precautionary BWN	04/08/2023	05/08/2023	20941
Cork	Killavullen	Turbidity	02/05/2022	27/03/2023	810
Cork	Macroom	Raw Water Turbidity	01/11/2023	21/12/2023	-
Cork	Macroom	Raw Water Turbidity	13/11/2022	13/02/2023	4237
Cork	Whitegate Regional	Turbidity	18/10/2023	N/L	-
Cork	Whitegate Regional	Turbidity	29/10/2022	10/07/2023	9011
Donegal	Carndonagh (Mixed Supply)	Turbidity	23/07/2023	27/07/2023	6376
Donegal	Cranford	Raw Water Turbidity	15/11/2023	20/11/2023	3734
Donegal	Inishowen West	Turbidity	23/07/2023	27/07/2023	3355
Donegal	Lettermacaward	Mechanical failure	31/07/2023	04/08/2023	2266
Dublin	DLR Zone 2	Inadequate disinfection	13/09/2023	N/L	4
Dublin	DLR Zone 2	Inadequate disinfection	13/09/2023	N/L	4
Galway	Carna/Kilkieran RWSS	Turbidity	18/08/2023	29/08/2023	2294
Galway	Dunmore/Glenamaddy PWS	Lack of treatment	17/02/2022	N/L	1

31 Note that where multiple notices are issued for the same supply – the population affected is counted only once in total population affected figures to avoid duplication.

County	Scheme Name	Reason	Date Notice Issued	Date Notice Lifted (N/L = not lifted as of 1/1/24)	Population Affected by Notice
Galway	Gort	Mechanical failure	12/12/2022	12/01/2023	2776
Galway	Kinvara PWS	Turbidity	09/10/2023	24/11/2023	2162
Galway	Spiddal PWSS	Inadequate disinfection	24/10/2022	05/04/2023	250
Galway	Tuam RWSS	Inadequate disinfection	03/08/2023	N/L	46
Galway	Tuam RWSS	Iron	30/03/2023	N/L	100032
Kerry	Aughacasma PWS 005D	Turbidity	22/06/2023	31/07/2023	340
Kildare	Clonuff	Inadequate disinfection	27/07/2023	18/08/2023	36
Kildare	Poulaphouca Regional	Inadequate disinfection	22/09/2023	29/09/2023	3557
Kilkenny	Clogh-Castlecomer PWS	Turbidity	10/02/2023	17/02/2023	-
Kilkenny	Clogh-Castlecomer PWS	Turbidity	16/12/2022	27/01/2023	3193
Kilkenny	Clogh-Castlecomer PWS	Turbidity	27/02/2023	01/07/2023	-
Limerick	Cappamore Foileen PWSS	Cryptosporidium	26/09/2023	N/L	2321
Limerick	Doon PWS	Turbidity	31/05/2023	15/12/2023	600
Limerick	Foynes/Shannon Estuary PWS	Cryptosporidium	13/05/2023	N/L	6986
Limerick	South West Regional PWS	Network problem	25/05/2023	02/06/2023	197
Louth	Ardee	Mechanical failure	04/09/2023	12/09/2023	8040
Louth	Ardee	Inadequate disinfection	04/08/2023	12/09/2023	-
Louth	South Louth & East Meath	E. coli	27/04/2023	17/05/2023	5
Mayo	Clare Island PWS	Cryptosporidium	24/03/2023	31/03/2023	160
Mayo	Clare Island PWS	Cryptosporidium	19/06/2023	05/10/2023	0
Mayo	Crossmolina PWS	Inadequate disinfection	22/11/2023	27/11/2023	1153
Meath	Athboy	Lack of treatment	24/02/2023	N/L	5

32 The population affected was ultimately reduced to 520 following Uisce Éireann consultation with HSE.

County	Scheme Name	Reason	Date Notice Issued	Date Notice Lifted (N/L = not lifted as of 1/1/24)	Population Affected by Notice
Meath	Athboy	Lack of treatment	24/02/2023	N/L	5
Meath	Athboy	Lack of treatment	24/02/2023	N/L	5
Meath	Baltrasna	Inadequate disinfection	22/12/2014	N/L	9
Meath	Batterstown	Bromate	13/12/2021	03/02/2023	96
Offaly	Birr PWS	Turbidity	30/08/2023	05/09/2023	5173
Offaly	Tullamore South And Clonaslee	Turbidity	20/06/2023	14/07/2023	3905
Roscommon	Castlereagh PWS	UV system problem	22/09/2023	06/10/2023	3929
Sligo	Foxes Den PWSS	Inadequate disinfection	27/02/2023	08/03/2023	6
Tipperary	Ardfinnan Regional	Turbidity	07/07/2023	25/08/2023	11364
Tipperary	Burncourt Ballylooby	Turbidity	10/07/2023	21/07/2023	-
Tipperary	Burncourt Ballylooby	Raw Water Turbidity	27/07/2023	03/11/2023	1728
Tipperary	Burncourt Regional	Turbidity	10/07/2023	21/07/2023	1857
Tipperary	Burncourt Regional	Raw Water Turbidity	27/07/2023	03/11/2023	-
Tipperary	Carrick-On-Suir (Crottys Lake)	<b>Industrial Action</b> - Precautionary BWN	02/08/2023	05/08/2023	-
Tipperary	Carrick-On-Suir (Crottys Lake)	<b>Industrial Action</b> - Precautionary BWN	13/07/2023	17/07/2023	2150
Tipperary	Carrick-On-Suir (Lingaun River)	Cryptosporidium	20/06/2023	30/06/2023	3869
Tipperary	Clonmel Poulavanogue	<b>Industrial Action</b> - Precautionary BWN	02/08/2023	05/08/2023	-
Tipperary	Clonmel Poulavanogue	<b>Industrial Action</b> - Precautionary BWN	13/07/2023	17/07/2023	-
Tipperary	Clonmel Poulavanogue	Inadequate disinfection	21/06/2023	03/07/2023	2435
Tipperary	Clonmel Poulavanogue	Inadequate disinfection	11/10/2018	30/11/2023	96
Tipperary	Dundrum Regional	Turbidity	17/08/2023	30/08/2023	3799
Tipperary	Fethard Regional PWSS	Inadequate disinfection	24/12/2022	10/01/2023	6744
Tipperary	Galtee Regional	Turbidity	14/07/2023	21/07/2023	-

County	Scheme Name	Reason	Date Notice Issued	Date Notice Lifted (N/L = not lifted as of 1/1/24)	Population Affected by Notice
Tipperary	Galtee Regional	Turbidity	27/07/2023	21/08/2023	15795
Tipperary	Galtee Regional	Iron	13/04/2023	15/05/2023	40
Tipperary	Galtee Regional	Inadequate disinfection	09/06/2023	N/L	46
Tipperary	Glenary	<b>Industrial Action</b> - Precautionary BWN	02/08/2023	06/08/2023	-
Tipperary	Glenary	<b>Industrial Action</b> - Precautionary BWN	13/07/2023	21/07/2023	10564
Tipperary	Glenary	Turbidity	15/08/2023	30/08/2023	-
Tipperary	Glengar	Cryptosporidium	03/03/2023	18/05/2023	470
Tipperary	Templetney/Brackford Bridge PWS	<b>Industrial Action</b> - Precautionary BWN	13/07/2023	17/07/2023	3920
Tipperary	Thurles Regional Water Supply	Inadequate disinfection	14/07/2023	21/08/2023	11394
Waterford	Carrignagower	Inadequate disinfection	22/12/2021	N/L	35
Waterford	East Waterford Water Supply Scheme	<b>Industrial Action</b> - Precautionary BWN	13/07/2023	15/07/2023	63542
Waterford	East Waterford Water Supply Scheme	<b>Industrial Action</b> - Precautionary BWN	02/08/2023	05/08/2023	-
Waterford	Garryahylish	Inadequate disinfection	22/12/2021	N/L	2
Waterford	Graiguenageeha	Inadequate disinfection	07/01/2022	N/L	40
Waterford	Grallagh	Turbidity	19/10/2023	23/11/2023	48
Waterford	Kereen	Turbidity	19/02/2021	02/02/2023	28
Waterford	Kill/Ballylaneen	<b>Industrial Action</b> - Precautionary BWN	13/07/2023	15/07/2023	1207
Waterford	Kill/Ballylaneen	<b>Industrial Action</b> - Precautionary BWN	02/08/2023	05/08/2023	-
Waterford	Stradbally	<b>Industrial Action</b> - Precautionary BWN	13/07/2023	15/07/2023	663
Waterford	Stradbally	<b>Industrial Action</b> - Precautionary BWN	02/08/2023	05/08/2023	-
Waterford	Villierstown	Turbidity	06/03/2023	06/04/2023	310
Wexford	Kiltealy	Turbidity	01/12/2023	12/12/2023	251
Wicklow	Arklow Public Supply	Inadequate disinfection	16/03/2023	03/05/2023	2



County	Scheme Name	Reason	Date Notice Issued	Date Notice Lifted (N/L = not lifted as of 1/1/24)	Population Affected by Notice
Wicklow	Ballymorris Public Supply	Turbidity	18/07/2019	N/L	17
Wicklow	Johnstown Sth (Arklow) Public Supply	Inadequate disinfection	04/06/2015	N/L	6
Wicklow	Killavaney Public Supply (Tinahely)	Inadequate disinfection	04/12/2023	N/L	9
Wicklow	Kilmacanogue Public Supply	Enterococci	07/12/2023	13/12/2023	3
Wicklow	Knockanarrigan Davidstown	Enterococci	02/10/2023	19/10/2023	219

**Table 2:** Water Restriction Notices in place during 2023

County	Supply Name	Reason	Issued	Rescinded (N/L means not lifted as of 1/1/24)	Population Affected by Notice
Cavan	Dowra PWS	Aluminium	11/08/2023	24/08/2023	56
Cork	Bilberry	Arsenic	21/09/2023	06/10/2023	14
Cork	Whiddy Island	Turbidity	19/08/2022	N/L	40
Donegal	Letterkenny	Hydrocarbons	03/08/2023	19/10/2023	5
Galway	Inisboffin PWS	Manganese	14/09/2023	03/11/2023	156
Kildare	Barrow Supply	Manganese	14/08/2023	18/08/2023	1177
Louth	South Louth & East Meath	Manganese	27/11/2023	N/L	3
Monaghan	Drum	Manganese	21/06/2023	05/07/2023	43
Monaghan	Monaghan	Manganese	24/10/2023	31/10/2023	1000
Monaghan	Smithboro	Manganese	10/11/2023	14/11/2023	10
Waterford	Ballydermody	Nitrates	12/12/2013	N/L	2
Waterford	East Waterford Water Supply Scheme	Manganese	22/12/2022	N/L	3





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