

# Site Visit Report

Under the *European Union (Drinking Water) Regulations 2023*, the Environmental Protection Agency (EPA) is the supervisory authority in relation to Uisce Éireann and its role in the provision of public drinking water supplies. This audit was carried out to assess the performance of Uisce Éireann in providing clean and wholesome water to the public water supply named below.

The audit process is a sample of the performance of a water treatment plant and public water supply on a given date.

Water Supply Zone	
<b>Name of Installation</b>	Templemore RWSS (Zone 1 - College Hill)
<b>Organisation</b>	Uisce Éireann
<b>Scheme Code</b>	2800PUB1010
<b>County</b>	Tipperary
<b>Site Visit Reference No.</b>	SV28196

Report Detail	
<b>Issue Date</b>	26/10/2023
<b>Prepared By</b>	Criona Doyle

Site Visit Detail			
<b>Date Of Inspection</b>	11/10/2023	<b>Announced</b>	Yes
<b>Time In</b>	13:10	<b>Time Out</b>	15:05
<b>EPA Inspector(s)</b>	Criona Doyle Veronica Boland		
<b>Additional Visitors</b>			
<b>Company Personnel</b>	Uisce Eireann: Denis McGrath.  Tipperary County Council (working in partnership with Uisce Éireann): Aidan Delaney, John Lloyd.		

## > Summary of Key Findings

1. Upgrade works are planned under the Uisce Éireann Disinfection Programme at Templemore Regional Water Treatment Plant. No completion date could be confirmed at the audit for the completion of the disinfection programme upgrades.
2. The protozoal log treatment required for the groundwater source has not been determined pending the completion of the alarm and inhibit review. There is no verified protozoal barrier in place at Templemore Regional Public Water Supply (College Hill Water Treatment Plant) due to the absence of appropriate filter turbidity alarms and inhibits on the filtration treatment stage.

## > Introduction

Templemore Regional Public Water Supply (PWS) supplies a population of 2,944 with a volume of approximately 1,675m<sup>3</sup>/d. Raw water is abstracted from a borehole adjacent to the water treatment plant (WTP). Treatment includes aeration, rapid gravity filtration, chlorination and fluoridation.

The audit was undertaken to assess Uisce Éireann's performance in producing clean and wholesome water with a focus on the alarms and inhibits in place at the WTP and the procedures in place to ensure appropriate oversight of treatment processes.

## > Supply Zones Areas Inspected

All the main water treatment plant areas of the Templemore Regional Water Treatment Plant were inspected.



## 1. Source Protection

	Answer
1.1 Is the abstraction source(s) adequately protected against contamination?	No
<b>Comment</b>	
There were two boreholes located in locked chambers adjacent to the WTP building. The wellheads were sealed. The inspection hatches on the wellhead chambers were not well sealed and a build up of water and leaf debris was observed on the base of the chambers.	



## 2. Filtration

	Answer
2.1 Are the filters designed and managed in accordance with EPA guidance?	No
<b>Comment</b>	
<p>Two rapid gravity filters are in operation on site. Historically they were installed to remove any iron and manganese precipitate after the aeration stage. Tipperary County Council reported there are no iron and manganese issues currently at the site. There is no coagulation stage on site and the filters are not operated in accordance with <i>EPA Water Treatment Manual: Filtration</i> guidance. There are no individual turbidity monitors or turbidity alarm setpoints for the filters. No information was available on the current depth of the filter media or when it was last replaced.</p>	



### 3. Management and Control

		Answer
3.1	Has the protozoal compliance log treatment requirement been identified for the water treatment plant?	No
<b>Comment</b>		
The protozoal log treatment requirement for the groundwater source has not been determined. Uisce Éireann confirmed the alarm and inhibit review is currently underway following which the protozoal log treatment requirement will be confirmed.		



## 4. Alarms, Inhibits & Oversight Audits 2023

		<b>Answer</b>
4.1	Is there a documented site specific incident response and incident escalation process?	No
	<b>Comment</b>	
	The Uisce Éireann Incident Communication Response Guidance Form with site specific information including contacts for escalation and relevant trigger levels to protect critical processes at the water treatment plant was not displayed on site.	
		<b>Answer</b>
4.2	Did staff confirm they have received training on the site specific incident response and incident escalation process?	No
	<b>Comment</b>	
	Tipperary County Council indicated they had not received training on the Uisce Éireann Incident Communication Response Guidance on incident response and escalation.	
		<b>Answer</b>
4.3	Is there a chlorine residual monitor located after contact time for verification of primary disinfection?	No
	<b>Comment</b>	
	The contact time calculation includes the reservoir and 800m of pipeline to the reservoir. There is no residual chlorine monitor at the reservoir outlet to verify contact time. Uisce Éireann stated the disinfection system is to be upgraded under the Uisce Éireann Disinfection Programme.	
		<b>Answer</b>
4.4	Is suitable continuous monitoring in place to verify treatment performance?	No
	<b>Comment</b>	
	There are no turbidity monitors on the individual filters to verify the performance of the rapid gravity filtration stage. Monitoring of raw water turbidity and final water turbidity is taking place.	
	There is no monitoring of residual chlorine at the outlet of the reservoir to verify contact time is being maintained at all times. There is one chlorine monitor located at the clear water tank.	
		<b>Answer</b>
4.5	Were online monitors within their calibration dates?	No

**Comment**

The raw water pH monitor and final water pH monitor were operational but they did not have a sticker to confirm the date that they were last calibrated or serviced. Tipperary County Council or Uisce Éireann could not confirm the date when they were last calibrated or serviced but reported it had not been done in the last 3 years.

Tipperary County Council stated they were waiting for a contractor to come to site to service and calibrate the pH monitors but the expected date for the completion of the works could not be confirmed at the audit.

4.6

Are suitable alarm settings in place to alert operators to deteriorating water quality or the failure of a critical treatment process?

**Answer**

No

**Comment**

There is no residual chlorine monitor with alarm at the reservoir outlet to generate a warning alarm in the event of inadequate contact time. There are high (2.0mg/l) and low (0.7mg/l) chlorine alarm setpoints.

There are no turbidity alarm setpoints on the individual filters. There is a final water turbidity alarm at 1 NTU.

4.7

Has UÉ carried out an alarm and inhibit review at the water treatment plant?

**Answer**

No

**Comment**

Uisce Éireann reported that an alarm and inhibit review is currently underway at the site.

4.8

Are suitable plant shutdowns/inhibits in place to prevent the entry of inadequately treated water entering the distribution network?

**Answer**

No

**Comment**

There is no plant shutdown in the event of inadequate contact time at the reservoir outlet. There is no plant shutdown linked to the high level (2.0mg/l) or low (0.7mg/l) level chlorine alarm setpoints. There is no plant shutdown linked to the final water turbidity alarm (1 NTU).

4.9

Is there appropriate oversight of plant performance trends?

**Answer**

No

**Comment**

Uisce Éireann or Tipperary County Council could not confirm at the audit if supervisory staff are regularly undertaking reviews of SCADA trends.

		Answer
4.10	Is there a documented alarm response procedure?	No
<b>Comment</b>		
There is no documented alarm response procedure at the WTP.		

		Answer
4.11	Are there appropriate procedures covering verification of alarms and inhibits status following maintenance or other work on site?	No
<b>Comment</b>		
There is no documented procedure covering the verification of alarms or inhibits following maintenance or other work on site. Tipperary County Council confirmed following works they wait until plant is back up running and check that the chlorine monitor is back trending at the target level.		

## Recommendations

Subject	Audit Templemore Regional - Audit	Due Date	26/11/2023
<b>Action Text</b>	<p><b>Uisce Éireann is responsible for ensuring a clean and wholesome supply of drinking water and should implement the following recommendations without delay.</b></p> <ol style="list-style-type: none"> <li>1. (i) Install shutdowns linked to the high and low chlorine alarm setpoints; (ii) Install a continuous online chlorine monitor with alarm to verify contact time; (iii) provide details of the Disinfection Programme Upgrade Works and the expected timeframe for completion of the works.</li> <li>2. (i) Confirm the protozoal log treatment requirement for the plant; (ii) confirm how the log deficit will be addressed with the timeframe for completion of the works (iii) ensure monitoring for <i>Cryptosporidium</i> is carried out as per <i>Uisce Éireann's Rationale for Determining the Frequency of Cryptosporidium in Public Water Supplies</i>.</li> <li>3. (i) Install turbidity monitors with appropriate alarms and inhibits on each filter and on the combined filtered water to verify that the plant operates in accordance with the log credit approach as set out in the EPA Filtration Manual and (ii) Install automatic shutdown for turbidity in the final water if &gt; 1 NTU (3 minutes delay).</li> <li>4. Ensure (i) the Uisce Éireann Incident Communication Response Guidance Form is displayed at the College Hill WTP with site specific trigger levels protecting critical processes at the WTP and (ii) provide training to all operational and relief staff on the incident response and escalation procedure.</li> <li>5. Ensure all monitors are calibrated and serviced by the due date.</li> <li>6. Ensure the review and oversight of trends by supervisory staff is undertaken regularly.</li> <li>7. Ensure there is a procedure in place for caretakers and contractors to check and sign-off that all alarms have been correctly re-set on completion of any maintenance work.</li> <li>8. Ensure that inspection hatches at the boreholes are adequately sealed and maintained to prevent surface water ingress.</li> </ol> <p><b>Actions required by Uisce Éireann</b></p> <p>During the audit, Uisce Éireann representatives were advised of the audit findings and that action must be taken by Uisce Éireann to address the issues raised.</p> <p>Uisce Éireann should submit a report to the EPA on or before 26/11/2023 detailing the actions taken and planned, with timescales, to close out the above recommendations.</p> <p>The EPA advises that the findings and recommendations from this audit report should, where relevant, be addressed at other public water supplies.</p>		