

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	
Name of Installation	Tullamore South And Clonaslee
Organisation	Uisce Éireann
Scheme Code	2500PUB1020
County	Offaly
Site Visit Reference No.	SV29592

Report Detail	
Issue Date	16/09/2024
Prepared By	Lisa Noone

Site Visit Detail			
Date Of Inspection	15/08/2024	Announced	Yes
Time In	10:00	Time Out	13:25
EPA Inspector(s)	Lisa Noone		
Additional Visitors			
Company Personnel	Uisce Éireann: Linda Doran, Paul Cahill, Catherine Casey, Roger Larkin Offaly County Council (working in partnership with Uisce Éireann): Stephen Ryan, Clodagh Graham, Timothy Ryan		

> Summary of Key Findings

1. The audit found that Tullamore South and Clonaslee Water Treatment Plant was operating satisfactorily and noted improvements in plant management and operation following actions taken to address previous audit recommendations and the Boil Water Notice issued and subsequently lifted in 2023.
2. There is no automatic shutdown of the Old Plant for low residual chlorine at the contact time validation point, nor is there a standby UV disinfection unit in the New Plant in the event of failure of the duty UV unit.
3. Confirmation is required by Uisce Éireann regarding the status of continuous monitors and associated alarms and inhibits in place at both the Old and New Plant. Uisce Éireann stated that these are currently being addressed via ongoing works and process optimisation.

> Introduction

The Tullamore South and Clonaslee Public Water Supply (PWS) serves a population of approximately 3,900 and supplies on average 1,661 m³/day of water to South Tullamore, Clonaslee Co. Laois, and surrounding areas. The supply is served by two separate water treatment plants (WTPs) - the Old Plant and the New Plant. The raw water sources and treatment for both plants are as follows;

The Old Plant: Water is abstracted from the Clodiagh River - a surface water source at a rate of intake of approximately 513m³/day. Treatment consists of coagulation, flocculation, clarification (CFC), rapid gravity filtration via two filters, fluoridation and disinfection via chlorination only.

The New Plant: Water is abstracted from groundwater sources only, via Clarahill, Glebe, Forest 1 and Forest 2 boreholes, at a rate of intake of approximately 1,300m³/day. Treatment consists of filtration via three pressure filters, fluoridation, primary disinfection via UV and chlorination. Both treated surface water and groundwater are stored in the combined on-site reservoir with a storage capacity of approximately 2,850m³.

The audit was undertaken to assess the performance of Uisce Éireann in providing clean and wholesome drinking water with a focus on the alarms and inhibits in place at both treatment plants and the procedures in place to ensure appropriate oversight of treatment processes. In addition, the audit assessed actions carried out by Uisce Éireann to address recommendations from the previous EPA audit carried out on 23/05/2023 and a Boil Water Notice in place due to a compromised *Cryptosporidium* barrier from 20/06/2023 to 14/07/2023.

> Supply Zones Areas Inspected

All treatment processes at both the Old Plant and the New Plant and on-site reservoir were inspected. Surface water and groundwater abstraction points were not inspected as part of the audit.



1. Incident Management

	Answer
1.1	Was the incident suitably alerted to the plant operators, escalated and managed in order to maintain water quality and protect public health?
	Yes
Comment	
<p>1. A Boil Water Notice (BWN) was placed on Tullamore South and Clonaslee PWS from 20/06/2023 to 14/07/2023 which affected approximately 3,905 people at the time. The BWN was placed on the supply as a result of a compromised <i>Cryptosporidium</i> barrier and high turbidity levels post filtration due to adverse weather and subsequent decline of raw water quality from the Clodiagh River source.</p> <p>2. The incident was appropriately escalated within Offaly County Council and Uisce Éireann at the time of the incident. The HSE were notified and consulted with.</p> <p>3. Following works on the coagulation process, and validation monitoring to confirm adequate chlorine levels and microbiological compliance in the network, the BWN was lifted on the 14/07/2023 in consultation with the HSE.</p> <p>4. The Old Plant was taken out of production following the lifting of the BWN and the network was temporarily reconfigured as supply from the New Plant alone was not sufficient for the Tullamore South and Clonaslee network. A temporary arrangement whereby Tullamore North and Rahan - Agall/Holmshill supplemented the Tullamore South and Clonaslee supply was put in place until works on the Old Plant were completed and appropriate alarms and inhibits were put in place.</p> <p>5. Uisce Éireann and Offaly County Council confirmed at the audit that the temporary reconfiguration of the plant ceased on 08/02/2024 following works, and plant production has since reverted to normal.</p>	



2. Disinfection

2.1

Are duty and standby chlorine pumps/ UV units in operation?

Answer

No

Comment

1. UV is used as primary disinfection in the New Plant, and there is no standby UV disinfection unit in the event of failure of the duty UV unit.

2. There are duty and standby chlorine dosing pumps in both the Old and New plant but there is no automatic changeover in the event of a failure of the duty pumps. Chlorine is used as primary disinfection in the Old Plant and duty and standby units are manually switched over on a weekly basis.

3. One of the chlorine dosing pumps in the New Plant was not operational at the time of the audit.



3. Alarms, Inhibits & Oversight Audits 2024

	Answer	
3.1	Is there a documented site specific incident response and incident escalation process?	No
Comment		
1. The Uisce Éireann incident escalation flowchart was displayed at the WTP, however site specific contacts were not up to date.		

	Answer	
3.2	Is continuous monitoring located appropriately to verify treatment performance?	No
Comment		
1. Continuous water turbidity monitoring is in place for raw water, individual filters and final water. There is no combined filter turbidity monitoring to verify if turbidity levels are adequate prior to disinfection.		

	Answer	
3.3	Were online monitors operational?	No
Comment		
1. The pH monitor at the surface water intake for the Old Plant was not operational at the time of the audit due to a faulty pH probe.		

	Answer	
3.4	Are suitable alarm settings in place to alert operators to deteriorating water quality or the failure of a critical treatment process?	No
Comment		
1. Alarms are not currently in place for settled water turbidity in the Old Plant. Uisce Éireann advised that these will be installed once process proving and checks on the settlement tank are complete.		
2. The raw water pH alarm is currently disabled due to a faulty pH probe.		
3. Uisce Éireann could not confirm at the time of the audit if shutdown of the Old Plant was enabled should Filter 1 and Filter 2 exceed 0.3NTU for 15 minutes due to an apparent error on the new HMI system.		

Answer

3.5	Are dial out arrangements suitable to allow a timely response?	No
Comment		
<p>1. Critical alarms are dialled-out on a group-basis to the site caretakers and operational personnel. Alarms are responded to on a hierarchical basis, however there is no way of verifying that they have been responded to.</p> <p>2. The New Plant operates an additional response layer via the National Operations Management Centre (NOMC) whereby actions in response to alarm dial-outs can be overseen by Uisce Éireann to ensure they have been addressed.</p>		

		Answer
3.6	Are suitable plant shutdowns/inhibits in place to prevent the entry of inadequately treated water entering the distribution network?	No
Comment		
<p>1. There is no automatic shutdown in place for low residual chlorine at the contact time (Ct) validation point should the chlorine residual fall below the required Ct value/timeframe.</p>		

		Answer
3.7	Is there a documented alarm response procedure?	No

		Answer
3.8	Are there appropriate procedures covering verification of alarms and inhibits status following maintenance or other work on site?	No



4. Site Specific Issues

		Answer
4.1	Is the information reported by Uisce Éireann on the EPA EDEN portal correct?	No
Comment		
1. Information regarding output volume and population reported on the EPA EDEN portal was inaccurate.		

Recommendations

Subject	Tullamore South and Clonaslee Audit Recommendations	Due Date	18/10/2024
Action Text	<p>Uisce Éireann is responsible for ensuring a clean and wholesome supply of drinking water and should implement the following recommendations without delay:</p> <ol style="list-style-type: none"> 1. Ensure that there are duty and standby UV disinfection units with automatic changeover or plant shutdown in the event of failure of one of the UV disinfection units. 2. Install automatic shutdown at the contact time validation point should the chlorine residual fall below the required Ct value/timeframe. 3. Install automatic switchover in the event of failure of one of the chlorine dosing pumps for both plants. 4. Repair or replace (i) the raw water pH meter in the Old Plant and (ii) the chlorine dosing pump in the New Plant. 5. Examine the feasibility of installing a continuous monitor for combined filtered turbidity to verify that turbidity is <1NTU at disinfection. 6. Put in place appropriate alarms for (i) raw water pH, (ii) settled water turbidity and (iii) confirm individual filter turbidity alarm and shutdown setpoints in the Old Plant, and confirm that the plant is operating in accordance with the log performance criteria specified in the <i>EPA Water Treatment Manual: Filtration</i>. 7. Ensure that the Uisce Éireann Incident Communication Response Guidance Form displayed at the WTP contains site specific information including up-to-date contacts for escalation. 8. Put a documented procedure in place for (i) responding to and escalating all alarms generated at the WTP - the procedure should clearly document the corrective actions and set out delegation of responsibilities for operational and relief staff, and (ii) verification of alarms/shutdowns status following maintenance or other works completed at the treatment plant. Ensure all staff are trained in these procedures. 9. Put in place an appropriate cascade system for responding to alarms generated at the plant which allows for verification that an alarm has been responded to. 10. Update EDEN with the correct volume and population supplied in the network. <p>Actions required by Uisce Éireann</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 the above due date 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>		