

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	Athlacca PWS
Organisation	Uisce Éireann
Scheme Code	1900PUB1007
County	Limerick
Site Visit Reference No.	SV30658

Report Detail	
Issue Date	13/12/2024
Prepared By	Orla Harrington

Site Visit Detail			
Date Of Inspection	13/11/2024	Announced	Yes
Time In	10:45	Time Out	11:25
EPA Inspector(s)	Orla Harrington		
Additional Visitors			
Company Personnel	Uisce Éireann: Susan Cook, Sharon O'Dwyer, Ted Ahern. Limerick City and County Council (working in partnership with Uisce Éireann): Neal Boyle, Willie Hurley.		

> Summary of Key Findings

1. There is no operational standby UV unit at Athlacca water treatment plant.
2. The validation certificate for the UV unit was unavailable to facilitate an assessment of the alarms/inhibits settings at the plant to ensure there is adequate control and protection of the disinfection process. It could not be confirmed at the audit whether the UV disinfection system was operating within its validated range.
3. There was no operational verification of the effectiveness of manganese removal at the Athlacca water treatment plant.
4. The low alarm set points on the chlorine dose (monitor CL001) are too low to ensure adequate secondary disinfection is maintained in the network.

> Introduction

The Athlacca public water supply serves 35 m³/day to a population of approximately 113 from a single borehole. Treatment consists of manganese removal (by one pressure filter), primary disinfection by UV via duty and standby UV units, and secondary disinfection by chlorination before distribution.

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 treatment plant and the procedures in place to ensure appropriate oversight of treatment processes.

> Supply Zones Areas Inspected

The treatment processes were inspected during the audit and monitoring and control systems including alarm set-points were reviewed.



1. Source Protection

	Answer
1.1	Is the abstraction source(s) adequately protected against contamination? No
Comment	
<p>1. Raw water is obtained from one borehole on site.</p> <p>2. The borehole is not sealed or capped in accordance with EPA Drinking Water Advice Note No. 14:Borehole Construction and Wellhead Protection.</p>	



2. Management and Control

		Answer
2.1	Is the water treatment plant resilient enough to cope with significant variations in raw water quality or demand?	No
Comment		
<p>1. Uisce Éireann advised that UV disinfection provides the primary source of disinfection followed by secondary disinfection via chlorination. The validation certificate for the UV unit was unavailable to facilitate an assessment of the alarms/inhibits settings at the plant to ensure there is adequate control and protection of the disinfection process.</p> <p>2. There is one duty UV unit operating on site. The standby UV unit was out of operation. Uisce Éireann stated that they were waiting on a replacement part for the unit. Uisce Éireann were unable to confirm when the UV unit went out of operation. It was not confirmed whether the HSE had been informed of the absence of critical equipment (standby UV unit) to determine risk to public health.</p>		

		Answer
2.2	Has the protozoal compliance log treatment requirement been identified for the water treatment plant?	No
Comment		
<p>1. Uisce Éireann said that a source and sanitary survey must be completed prior to confirming the protozoal log treatment requirement for the plant.</p>		



3. Alarms, Inhibits & Oversight Audits 2024

		Answer
3.1	Is suitable continuous monitoring in place to verify treatment performance?	No
Comment		
<p>1. Limerick City and County Council advised that manganese levels are naturally occurring in the raw water. There is one pressure filter (labelled as PENTAIR) for the purposes of manganese removal but little information was available at the audit on how the filter operates. Uisce Éireann did not know the media type, depth of media contained in the filter or when the media was last replaced. In terms of maintenance, Uisce Éireann stated that the filter is subject to service maintenance every six months.</p> <p>2. There is no operational monitoring programme of raw and treated water to ensure the manganese removal filter is operating effectively and efficiently.</p>		

		Answer
3.2	Are suitable alarm settings in place to alert operators to deteriorating water quality or the failure of a critical treatment process?	No
Comment		
<p>1. Uisce Éireann stated that UV disinfection is the primary source of disinfection with chlorination used for secondary disinfection at the water treatment plant. Uisce Éireann were unable to confirm the UV site specific target dose. The UV dose was reading 242.3 mJ/cm² on the day of the audit. The validation certificate was not available during or subsequent to the audit. It was not possible to determine if alarm and plant shutdown set points were appropriate to ensure the UV system was operating within its validated range at all times.</p> <p>2. An alarm signals when the chlorine monitor (CL001) falls below 0.25 mg/l. The plant shutdown if chlorine residual falls below 0.1 mg/l. These alarms and inhibits do not protect the 0.6 mg/l chlorine target at the plant to ensure 0.1 mg/l is met in the distribution network at all times.</p> <p>3. The pH alarm settings do not protect the treated water statutory limit of between 6.5 and 9.5 pH units.</p>		

		Answer
3.3	Has UÉ carried out an alarm and inhibit review at the water treatment plant?	No
Comment		
<p>1. Uisce Éireann have not undertaken an alarm and inhibit review at the water treatment plant.</p>		

		Answer
3.4	Are suitable plant shutdowns/inhibits in place to prevent the entry of inadequately treated water entering the distribution network?	No
Comment		

1. Suitable plant shutdowns/inhibits were not in place to protect critical treatment processes and ensure safe water supply at all times. See Point 3.2 above.

		Answer
3.5	Are plant performance trends accessible by operational staff at the water treatment plant?	No
Comment		
<p>1. Trend data is not available to operational staff at the water treatment plant. Uisce Éireann confirmed that the current telemetry system is not fit for purpose and that a new server is required. It was confirmed that repairs are scheduled for Quarter 1 2025.</p> <p>2. It was also confirmed that plant alarm and inhibits remain fully functional as staff have the ability to remotely view real time process data via remote log in to confirm status of treatment plant operations.</p>		

		Answer
3.6	Is there a documented alarm response procedure?	No

Recommendations

Subject	Athlacca PWS - Audit Report	Due Date	02/01/2025
Action Text	<p>Uisce Éireann is responsible for ensuring a clean and wholesome supply of drinking water and should implement the following recommendation(s) without delay.</p> <ol style="list-style-type: none"> 1. UV Disinfection: (i) submit a copy of the UV validation certificate for the UV disinfection system at Athlacca water treatment plant (ii) confirm that the standby UV unit is operational and (iii) provide details of the alarm and inhibit setpoints in place to ensure that the UV unit operates within its validated range at all times and (iv) ensure when consulting with the HSE on incidents, that an absence of critical monitoring equipment used to verify the adequateness of treatment is communicated to warrant an informed assessment of the risk to human health. 2. Commence (i) an operational monitoring programme of raw and treated water to ensure the manganese removal process is operating effectively and efficiently (ii) ensure the details of the filter media service record are maintained at the water treatment plant. 3. Review alarm and inhibit settings at the plant for chlorine and pH to protect target levels and ensure statutory limits are protected. 4. Undertake an Alarm and Inhibit Review of the plant and implement the findings to protect treatment processes and treated water quality. 5. Confirm the protozoal log treatment requirement for the raw water source and provide details of how any protozoal log treatment deficit, if identified, will be addressed. 6. Ensure that (i) a formal site specific alarm response procedure is in place at the treatment plant. The procedure should clearly document the corrective actions and set out delegation of responsibilities for operational staff and relief staff; (ii) provide training to relevant staff on the requirements of the alarm response procedure. 7. Resolve the telemetry issue at the water treatment plant to ensure that treatment process data is captured and available at all times. 8. Ensure the borehole is adequately capped. Uisce Éireann should have regard to EPA Advice Note No. 14: Borehole Construction and Wellhead Protection when carrying out these works. <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 02/01/2025 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>		