

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	Athlone PWS
Organisation	Uisce Éireann
Scheme Code	3200PUB1001
County	Westmeath
Site Visit Reference No.	SV29567

Report Detail	
Issue Date	09/07/2024
Prepared By	Lisa Noone

Site Visit Detail			
Date Of Inspection	14/06/2024	Announced	Yes
Time In	14:00	Time Out	17:05
EPA Inspector(s)	Lisa Noone		
Additional Visitors			
Company Personnel	Uisce Éireann: Joseph Moran, Linda Doran, Alan Graham Westmeath County Council (working in partnership with Uisce Éireann): Ciaran McCabe, Geoff Cuffe, Cathal Kenny		

> Summary of Key Findings

1. The audit found that Athlone Water Treatment Plant was operating satisfactorily and providing good quality water.
2. The fluoride dosing incident and subsequent Do Not Consume Notice imposed on 19/04/2024 from 5pm-9pm was managed and escalated appropriately.
3. Issues regarding filter maintenance raised in a previous EPA audit have yet to be addressed by Uisce Éireann.

> Introduction

Athlone Water Treatment Plant (WTP) supplies approximately 19,000 people, with an average of 11,000m³ of treated water being produced at the plant per day and a production capacity of circa. 14,000m³/day. Athlone WTP is a surface water plant with water being abstracted from the adjacent River Shannon. The abstracted water is split between two different plants - the main plant and the supplementary plant as follows:

- Treatment at the main plant consists of coagulation, flocculation and clarification with tube settlers, followed by filtration, primary disinfection by UV and chlorination.
- Treatment at the supplementary plant consists of clarification (Actiflo system), filtration, primary disinfection via UV and chlorination. The supplementary plant was not in use at the time of the audit due to works being carried out.

Treated water from both streams is combined in a single clearwater tank where fluoride is dosed. Fluoridation was not taking place at the time of the audit due to Health and Safety access reasons. The final water is pumped from the clearwater tank to three service reservoirs - Annagh Reservoir, Battery Heights Reservoir and Coosan Reservoir. There is also a picket fence thickener, sludge holding tank and washwater tank for management of sludge and filter backwash water.

The audit was conducted as a full audit of the water treatment plant with a focus on performance of the protozoal barriers at the water treatment plant. In addition, the audit focused on a recent fluoride dosing failure and subsequent imposition of a temporary planned Do Not Consume (DNC) Notice on the supply on 19/04/2024. This Notice was lifted on 19/04/2024.

> Supply Zones Areas Inspected

The surface water intake point on the Shannon was inspected as part of the audit, in addition to all treatment processes for the main plant and the sludge holding tank. The supplementary plant was not inspected as part of the audit as it was not in operation at the time. The treated water reservoirs off-site were not inspected.



1. Incident Management

1.1

	Answer
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 PLC failure at Athlone WTP linked to processing capacity issues caused the plant to shut down automatically at approximately 7pm on the 18/04/2024. Whilst the automatic shut down of the plant occurred as designed, fail-safe alarms signaling this were not dialled-out to operators.</p> <p>2. Prior to the PLC failure, a signal went out to the fluoride dosing pumps to continue pumping. Upon failure of the PLC, the fluoride pumps continued to dose the treated water in the clearwater tank resulting in an increase in fluoride concentration impacting approximately 1,000m³ of water.</p> <p>3. Plant operators became aware of the incident the following morning at approximately 7am upon review of SCADA trends, and arrival at the plant to observe water overflowing from the raw water contact tank.</p> <p>4. The incident was appropriately escalated within Westmeath County Council and Uisce Éireann that morning, and Westmeath County Council engaged with contractors at this point to rectify the PLC failure.</p> <p>5. Upon notification of the incident, Uisce Éireann immediately initiated consultation with the HSE to discuss options for removal of the over-fluoridated water. At the time of the consultation, the network had run dry and there was no water in Athlone PWS. There is no run-to-waste facility at the WTP, and tankering the impacted water off site would have prolonged the water outage until the morning of the 20/04/2024. The decision was made to release the impacted water into the network under the protection of a timed Do Not Consume (DNC) Notice for the hours of 5pm to 9pm on the 19/04/2024. Additional emergency network monitoring was undertaken over following days for assurance purposes.</p> <p>6. Following the incident, fluoride dosing was switched off for the weekend of the 20/04/2024 and 21/04/2024 and was brought back online the following week under careful supervision. Unrelated to the incident, fluoride dosing remains offline at the WTP due to health and safety related issues.</p> <p>7. Uisce Éireann and Westmeath County Council confirmed at the audit that a similar issue will not occur in the event of another unexpected PLC failure. In addition, a fail-safe alarm has been put in place should the plant go into automatic shutdown, and issues relating to the PLC processing capacity have been rectified by contractors.</p>	



2. Protozoal Barriers Audits 2024

	Answer	
2.1	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 all relevant site specific information was not included.		

	Answer	
2.2	Are the filters designed and managed in accordance with EPA guidance?	No
Comment		
1. A build-up of algae was observed on the inlet channels and filter walls of the rapid gravity filters in the main plant.		
2. A number of issues regarding filter maintenance were raised at a previous EPA audit on 25/03/2022 which have not been fully addressed. Plant operators stated that access to the filters to carry out the necessary works are hindered by health and safety concerns, and a full refurbishment of Athlone WTP which is proposed for 2025/2026 should address these issues.		

	Answer	
2.3	Did treatment process trends demonstrate that data was being captured and recorded at all times?	No
Comment		
1. Gaps in trends were noted on a number of dates and were attributed to SCADA communication issues.		
2. Combined filter turbidity meters are in place at the plant, however trends and alarms setpoints visible on the plant HMI only could not be accessed or viewed on the SCADA system. It could not be determined at the time of the audit what combined filter turbidity setpoints were in place and if they were enabled.		

	Answer	
2.4	Are relevant alarms dialled out to allow a timely response by operational staff?	Yes
Comment		
1. Critical alarms are dialled-out to all plant operators, however there is no way of verifying that they have been responded to.		

Recommendations

Subject	Athlone PWS Audit Recommendations	Due Date	09/08/2024
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. Undertake the following actions in relation to the filters a) increase depth of sand media in each filter, where feasible, to 1000mm as per the <i>EPA Water Treatment Manual: Filtration</i>; b) install a media depth gauge for each filter; c) install run to waste or slow start after filter backwashing where feasible; c) undertake actions to address uneven backwash distribution, mudballing and cracks in filter media; d) ensure that the filters are cleaned as required to prevent the build-up of algae.2. Ensure that the Uisce Éireann Incident Communication Response Guidance Form displayed at the WTP contains site specific information including contacts for escalation and relevant site specific trigger levels protecting critical processes at the WTP.3. Confirm combined filter turbidity setpoints and confirm that the plant is operating in accordance with the log performance criteria specified in the <i>EPA Water Treatment Manual: Filtration</i>.4. Assess and resolve the issues being experienced with the SCADA system to ensure that (i) treatment plant process trends are recorded at all times and (ii) combined filter turbidity alarms are dialled out to alert operational staff if the alarm setpoint is reached.5. 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. <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 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>		