

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	Shinrone/Brosna PWS
Organisation	Uisce Éireann
Scheme Code	2500PUB1019
County	Offaly
Site Visit Reference No.	SV29583

Report Detail	
Issue Date	01/08/2024
Prepared By	Lisa Noone

Site Visit Detail			
Date Of Inspection	05/07/2024	Announced	Yes
Time In	11:30	Time Out	14:15
EPA Inspector(s)	Lisa Noone Sean O'Leary		
Additional Visitors			
Company Personnel	Uisce Éireann: Linda Doran Offaly County Council (working in partnership with Uisce Éireann): Clodagh Graham, Roger Larkin, Michael Daly		

> Summary of Key Findings

1. The audit found a lack of appropriate oversight of plant performance trends, and clarification as to the cause of spikes and dips in turbidity, chlorine residual and UVI were not provided during or following the audit.
2. Alarms and inhibits in place for chlorine residual were not appropriate to ensure that treated water at the extremities of the distribution network contains at least 0.1 mg/l of chlorine.
3. An appropriate cascade system and procedures are not in place for responding to alarms generated at the plant or covering verification of alarms and inhibits status following maintenance.

> Introduction

The Shinrone Brosna Public Water Supply (PWS) is served by two separate water treatment plants (WTPs) - Glasshouse WTP (Niamh's Well) and Brosna Road WTP. Both plants serve separate parts of Shinrone and do not mix. The Shinrone Brosna PWS serves a population of approximately 1,100 people in total (800 from Glasshouse WTP and 300 from Brosna Road WTP). Glasshouse WTP produces circa. 190m³/day, and Brosna Road produces circa 90m³/day. Raw water is abstracted from groundwater boreholes at both plants and treatment is as follows:

- Treatment at Glasshouse WTP consists of microfiltration, primary disinfection via duty and standby UV units, secondary disinfection via chlorination
- Treatment at Brosna Road WTP consists of primary disinfection via chlorination only and treated water is pumped to Brosna Reservoir. An upgrade of this WTP is due over the coming years.

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 boreholes and treatment processes were inspected at both Glasshouse WTP and Brosna Road WTP. The reservoir at Brosna was not inspected as part of the audit.



1. Alarms, Inhibits & Oversight Audits 2024

		Answer
1.1	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. The following setpoints are in place at Glasshouse WTP for chlorine residual and turbidity Chlorine residual (6 minute time delay):</p> <ul style="list-style-type: none">• low low (shutdown): 0.2 mg/l;• low (alarm): 0.3 mg/l <p>2. Whilst records show that chlorine residual in excess of 0.1mg/l is being maintained in the network for the period reviewed, the low and low-low chlorine alarm set-points are below the target chlorine residual concentration of 0.6mg/l leaving the WTP. In addition, the low and low low alarms are not appropriate to ensure that treated water at the extremities of the distribution network contains at least 0.1 mg/l residual chlorine.</p> <p>3. The alarm setpoints in place for Brosna Road WTP were adequate.</p>	
		Answer
1.2	Are dial out arrangements suitable to allow a timely response?	No
	Comment	
	<p>1. Critical alarms are dialled-out on a group-basis to 4 operational personnel for both WTPs. Alarms are responded to on a hierarchical basis however there is no way of verifying that alarms have been responded to.</p>	
		Answer
1.3	Has UÉ carried out an alarm and inhibit review at the water treatment plant?	Yes
	Comment	
	<p>1. An alarm and inhibit review has been carried out for Glasshouse WTP and Brosna Road WTP. Uisce Éireann were requested to provide an update on the implementations of the recommendations following the audit but it was not received until 31/07/2024.</p>	
		Answer
1.4	Are suitable plant shutdowns/inhibits in place to prevent the entry of inadequately treated water entering the distribution network?	No
	Comment	

1. There is no plant shutdown/inhibit in place at the Brosna Road WTP to prevent the entry of inadequately treated water entering the distribution network. Offaly County Council representatives stated that this will be addressed as part of the plant upgrade.

2. Uisce Éireann could not provide a timeline for commencement of the proposed works to Brosna Road WTP at the time of the audit. Uisce Éireann were requested to provide an update on this following the audit but it was not received until 31/07/2024.

		Answer
1.5	Is there appropriate oversight of plant performance trends?	No
Comment		
<p>1. Plant performance trends inspected during the audit identified numerous spikes and dips in turbidity, chlorine residual and UVI in Glasshouse WTP over multiple dates from 12/06/2024 to 20/06/2024. Uisce Éireann could not clarify the cause of these fluctuations during the audit, and were requested to carry out an investigation and provide an update following the audit. An update has not been received to date.</p> <p>2. Chlorine residual trends for Brosna Road were not easily accessible at the time of the audit and Uisce Éireann were requested to provide these trends and explanations for any spikes or dips following the audit. Whilst chlorine residual trends were submitted to the EPA, explanations for trend fluctuations were not provided.</p>		

		Answer
1.6	Is there a documented alarm response procedure?	No

		Answer
1.7	Are there appropriate procedures covering verification of alarms and inhibits status following maintenance or other work on site?	No
Comment		
<p>1. There are no procedures covering verification of alarms and inhibits following maintenance. This is currently being addressed on a county-wide basis.</p>		

Recommendations

Subject	Shinrone Brosna Audit Recommendations	Due Date	02/09/2024
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 information requested by the EPA during and/or following an audit is provided for and made accessible to inspectors promptly.2. Provide clarification as to the cause of the spikes and dips noted for chlorine residual, turbidity and UVI for both Glasshouse WTP and Brosna Road WTP.3. Provide a timeline of commencement and scope of works to Brosna Road WTP, and investigate the feasibility of installing automatic shutdown as part of the upgrade.4. Review and confirm alarm set points and time delays in place for chlorine residual and turbidity.5. Implement the findings of the Alarm and Inhibit review to protect treatment processes and treated water quality.6. 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.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.8. Put a documented procedure in place for 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. Ensure all staff are trained in this procedure <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>		