

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	Knocklong PWS
Organisation	Uisce Éireann
Scheme Code	1900PUB1038
County	Limerick
Site Visit Reference No.	SV29585

Report Detail	
Issue Date	16/04/2024
Prepared By	Orla Harrington

Site Visit Detail			
Date Of Inspection	11/04/2024	Announced	Yes
Time In	12:00	Time Out	12:45
EPA Inspector(s)	Orla Harrington		
Additional Visitors			
Company Personnel	Uisce Éireann: Susan Cook. Limerick City and County Council (working in partnership with Uisce Éireann): Neal Boyle.		

> Summary of Key Findings

1. The audit found that Knocklong water treatment plant was operating satisfactorily on the day of the audit.
2. Chlorine alarms, inhibits and time delays were not in accordance with the EPA Water Treatment Manual: Disinfection.
3. The turbidity monitor is out of specification and requires re-calibration.
4. There is no documented alarm response procedure to advise operational staff on how specific water quality alarms should be responded to and acted upon.

> Introduction

Knocklong public water supply (PWS) serves a population of approximately 1,166 people and produces 502 m³ of treated water per day. Raw water is abstracted from an on-site borehole. Treatment consists of cartridge filtration, UV disinfection (primary) and chlorination disinfection (secondary).

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

All treatment processes on site and the borehole were inspected as part of the audit.



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. Alarms, Inhibits & Oversight Audits 2024

	Answer	
2.1	Were online monitors within their calibration dates?	No
Comment		
1. The auditor noted that the turbidity monitor is out of specification since 04/01/2024 and requires re-calibration.		

	Answer	
2.2	Are suitable alarm settings in place to alert operators to deteriorating water quality or the failure of a critical treatment process?	No
Comment		
1. The low chlorine alarm (0.25 mg/l) as displayed on the HMI is below the target of 0.6 mg/l chlorine residual concentration in the final water and should be raised to ensure it provides adequate warning of low chlorine levels. The chlorine monitor (CL17) in use at the plant was reading 0.65 mg/l on the day of the audit.		
2. At the audit, there was a 1,500 second (25 minutes) system delay on the HMI for the low chlorine alarm. The EPA's Water Treatment Manual: Disinfection recommends a maximum of 5 minutes delay on chlorine alarms.		
3. The UV alarm setpoints in place are in accordance with the UV validation criteria.		

	Answer	
2.3	Has UÉ carried out an alarm and inhibit review at the water treatment plant?	No
Comment		
1. An alarm and inhibit review has not been carried out by Uisce Éireann.		

	Answer	
2.4	Are suitable plant shutdowns/inhibits in place to prevent the entry of inadequately treated water entering the distribution network?	No
Comment		
1. The low chlorine shutdown setpoint is set at 0.1 mg/l and is well below the target of 0.6 mg/l chlorine residual concentration in the final water and should be raised to ensure treated water at the extremities of the distribution network contains at least 0.1 mg/l of residual chlorine to ensure adequate disinfection.		

	Answer
2.5 Is there a documented alarm response procedure?	No
Comment	
1. There is no documented site specific procedure detailing how alarms are responded to at the WTP.	

	Answer
2.6 Are there appropriate procedures covering verification of alarms and inhibits status following maintenance or other work on site?	No
Comment	
1. There are no procedures covering verification of alarms and inhibits status following maintenance or other work on site.	

Recommendations

Subject	Knocklong PWS -Audit Report	Due Date	16/05/2024
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. Review the chlorine alarm and shutdown setpoints and time delays to ensure adequate disinfection in accordance with the EPA Water Treatment Manual: Disinfection.2. Ensure that (i) there are documented site specific alarm response procedures and (ii) there are appropriate procedures covering verification of alarms and inhibits status following maintenance of other work at the plant.3. Undertake alarm and inhibit review and implement the findings.4. Ensure all instruments have been calibrated as per the manufacturer's requirements.5. 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 16/05/2024 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>		