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	Ballingarry PWS
Organisation	Uisce Éireann
Scheme Code	1900PUB1008
County	Limerick
Site Visit Reference No.	SV30012

Report Detail

Issue Date	15/04/2024
Prepared By	Orla Harrington

Site Visit Detail

Date Of Inspection	11/04/2024	**Announced**	Yes
Time In	10:30	**Time Out**	11:00
EPA Inspector(s)	Orla Harrington		
Additional Visitors	Brian Flynn Caitriona McCarthy		
Company Personnel	Uisce Éireann: Susan Cook Limerick City and County Council (working in partnership with Uisce Éireann): Neal Boyle, Declan O'Connor, Dom Hayes.		

Summary of Key Findings

1. The audit found that Ballingarry water treatment plant was operating satisfactorily on the day of the audit.

2. The UVI alarm and inhibit setpoints did not correspond to the UVI setpoint outlined in the ultraviolet disinfection system validation documentation based on the volume of flow going through the water treatment plant on the day of the audit.

3. Chlorine alarms and inhibits were not in accordance with guidance in the EPA Water Treatment Manual: Disinfection.

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

Ballingarry public water supply (PWS) serves a population of approximately 977 people and produces 434 m3 of treated water per day. Raw water is abstracted on site from Ballingarry Spring. 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 spring source were inspected as part of the audit.

1. Alarms, Inhibits & Oversight Audits 2024

		Answer
1.1	Were online monitors operational?	No

Comment

1. There is a raw water UVT monitor at the plant, however it was not operating on the day of the audit.

		Answer
1.2	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 (0.4 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 (CL001) in use at the plant was reading 0.59 mg/l on the day of the audit.

		Answer
1.3	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
1.4	Are suitable plant shutdowns/inhibits in place to prevent the entry of inadequately treated water entering the distribution network?	No

Comment

1. The UV validation certificate was made available prior to the audit.

2. The UV system warning and plant shutdown alarms were displayed on the HMI display screen, for turbidity, UVI, flow and UVT. The alarm for UVI appears to be set outside the validated operating range of the UV system. The UVI shutdown setpoint is set at 65.8 W/m2 and it is unclear how this set point is calculated. Based on the validation criteria, the minimum required UVI is 68.8 W/m2 for flows up to 19.9 m3/hr. The validated flow rate is 19.9 m3/hr, but the HMI screen shows that that UV system will shutdown at a maximum flow rate of 22.8 m3/hr.

3. The flow rate on that day of the audit was 19.16 m3/hr and the UVI monitor was reading 103.86 W/m2.

4. The low chlorine shutdown setpoint is set at 0.2 mg/l, well below the target of 0.6 mg/l chlorine residual concentration in the final water.

		Answer
1.5	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
1.6	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	Ballingarry PWS - Audit Report	Due Date	15/05/2024
Action Text	**Uisce Éireann is responsible for ensuring a clean and wholesome supply of drinking water and should implement the following recommendation(s) without delay.** 1. Review alarm and inhibit setpoints for UVI and flow, on both UV units, to meet the validation criteria outlined on the validation documentation provided prior to the audit. 2. Review the alarm and shutdown setpoints for chlorine to ensure adequate disinfection in accordance with the EPA Water Treatment Manual: Disinfection. 3. Confirm that the raw water UVT monitor is operational with an appropriate alarm in place. 4. 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. 5. Undertake alarm and inhibit review and implement the findings. **Actions required by Uisce Éireann** 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. Uisce Éireann should submit a report to the EPA on or before 15/05/2024 detailing the actions taken and planned, with timescales, to close out the above recommendations. The EPA advises that the findings and recommendations from this audit report should, where relevant, be addressed at other public water supplies.		