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	Villierstown
Organisation	Uisce Éireann
Scheme Code	3100PUB1100
County	Waterford
Site Visit Reference No.	SV27663

Report Detail

Issue Date	13/04/2023
Prepared By	Regina Campbell

Site Visit Detail

Date Of Inspection	30/03/2023	**Announced**	Yes
Time In	11:00	**Time Out**	12:10
EPA Inspector(s) **Additional Visitors**	Regina Campbell		
Company Personnel	Uisce Éireann: Patrick Duggan, Ronan Walsh. Waterford City & County Council: (working in partnership with Uisce Éireann) Dave Whelan, Ciarán Burke, Michael Hallihan.		

Summary of Key Findings

1. A Boil Water Notice was placed on the Villierstown Public Water Supply on 06/03/23 due to elevated turbidity in the groundwater source. The audit found that the incident was escalated satisfactorily by Waterford City and County Council and Uisce Éireann. The Boil Water Notice was still in place on the day of the audit and was lifted on 06/04/23.

2. At the audit Uisce Éireann advised that investigations carried out so far into the cause of the elevated turbidity were inconclusive. Trends viewed at the audit showed that turbidity levels had returned to low levels from about 17/03/23 onwards.

Introduction

The Villierstown Public Water Supply (PWS) serves a population of 310 and produces 77 m3/day (EPA EDEN portal figures). The source is a borehole located adjacent to the treatment plant house.

The audit was undertaken to assess Irish Water's performance in producing clean and wholesome water following the imposition of a Boil Water Notice (BWN) on the supply on 06/03/23 which was still in place on the day of the audit. The BWN was placed on the supply due to elevated turbidity above 1 NTU in the source borehole which meant disinfection would be compromised. The BWN was lifted on 06/04/23.

Supply Zones Areas Inspected

The borehole and chlorination disinfection system at the water treatment plant were inspected.

1. Incident Management

		Answer
1.1	Was the incident suitably alerted to the plant operators, escalated and managed in order to maintain water quality and protect public health?	Yes

Comment

The supply is fed by a single borehole which was constructed in 2016. On inspection the borehole was adequately sealed and capped.

On 03/03/23, turbidity in the borehole began to fluctuate and the plant kept shutting off when water reached 1 NTU. Staff responded to the incident and the borehole was ran to waste. There is approximately two days storage in the on-site reservoir.

When the turbidity did not lower to satisfactory levels, a Boil Water Notice was imposed on 06/03/23 to protect public health following consultation with the HSE.

Waterford City and Council staff advised that the pump which was previously at 100m depth was lifted on 29/03/23. A camera survey was undertaken which showed no obvious cause for the elevated turbidity. The pump was reinstated at a depth of 60m.

Trends reviewed showed that the turbidity had lowered since about 17/03/23 and the turbidity monitor displayed 0.142 NTU at the audit which is satisfactory.

At the audit Uisce Éireann advised that investigations to date were inconclusive as to the cause of the elevated turbidity.

The BWN was lifted on 06/04/23 following consultation by Uisce Éireann with the HSE.

2. Reservoirs and Distribution Networks

		Answer
2.1	Is treated water in tanks and reservoirs suitably protected against contamination?	No

Comment

The vent pipes on the reservoir were examined and it was found that there is no fine mesh on the vents to prevent the ingress of insects or other contamination.

3. Management and Control

		Answer
3.1	Has the protozoal compliance log treatment requirement been identified for the water treatment plant?	No

Comment

The protozoal compliance log treatment requirement has not been identified for the water treatment plant.

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

Comment

Waterford City and County Council staff said that there is no automatic shutoff based on high chlorine in the final water.

		Answer
3.3	Are suitable alarm settings in place to alert operators to deteriorating water quality and/or the failure of a critical treatment process?	No

Comment

1. The low chlorine alarm (0.35mg) and lowlow chlorine shutdown (0.3 mg/l) settings on the CL002 chlorine monitor on the final water are lower than the minimum free chlorine concentration of 0.5 mg/l as detailed in the site specific chlorine contact time calculation sheet.

2. The low pH alarm is set at 5.5 mg/l which is too low to alert the operator to an exceedance of the low pH parametric value of 6.5.

4. Drinking Water Quality

		Answer
4.1	Have relevant failures to comply with the requirements of the European Union (Drinking Water) Regulations 2014, as amended, been notified to the EPA?	No

Comment

A review of dates in the the site logbook showed that low pH levels of < 6.5 were recorded on multiple dates between 05/12/22 and 28/02/22. These persistent low pH exceedances were not notified to the EPA at the time of the failures.

The pH readings recorded in the site log book from 06/03/23 onwards were above the pH parametric value of 6.5 and the pH monitor was displaying 6.59 on the day of the audit which is in compliance with the parametric value. It could not be confirmed at the audit if the pH monitor at the plant is representative of pH levels in the final water in the supply

		Answer
4.2	Is Cryptosporidium monitoring being carried out in accordance with Irish Water's 'Rationale for Determining the Frequency of Cryptosporidium Monitoring in Public Water Supplies'?	No

Comment

Cryptosporidium monitoring is not being carried out on the supply. Uisce Éireann said that monitoring would commence shortly.

Recommendations

Subject	Audit Recommendations	Due Date	13/05/2023
Action Text	**Uisce Éireann is responsible for ensuring a clean and wholesome supply of drinking water and should implement the following recommendations without delay.** 1. Submit the findings of the investigation into the elevated turbidity which lead to the BWN and details of any remedial measures taken or planned to prevent further similar incidents. 2. Alarms and inhibits: a) review the low and low low chlorine alarm settings for chlorine monitor CL002 to ensure that the settings reflect the minimum free chlorine concentration required at the contact time validation point as per the site specific contact time calculation sheet and b) install shutdown of the plant based on high chlorine levels in the final water (at monitor CL002). 3. Log requirement: a) confirm the log treatment requirement for the plant, b) address how any log treatment deficit will be addressed at the plant and c) commence monitoring of the supply in accordance with the Irish Water Rationale for Monitoring of *Cryptosporidium* in Public Water Supplies. 4. pH: a) notify historical persistent pH exceedances to the EPA on CRM, b) undertake pH monitoring of the final water at the plant and in the network and submit results, c) confirm that the pH monitor at the plant is working correctly and that the readings correspond to laboratory samples, d) raise the low and low low pH alarm settings to ensure that exceedances of the parametric value are alerted to operational staff and e) provide details of any remedial actions required to restore compliance with the pH parametric value. 5. Ensure that all vents on the reservoir are secured against ingress of animals and insects or deliberate introduction of any contaminant or acts of vandalism. **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 13/05/23 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.		