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	Scarriff PWS
Organisation	Uisce Éireann
Scheme Code	0300PUB1006
County	Clare
Site Visit Reference No.	SV28373

Report Detail

Issue Date	14/12/2023
Prepared By	Orla Harrington

Site Visit Detail

Date Of Inspection	23/11/2023	**Announced**	Yes
Time In	11:20	**Time Out**	12:10
EPA Inspector(s) **Additional Visitors**	Orla Harrington		
Company Personnel	Uisce Éireann: Tommy Roche, Liam Honan Clare County Council (working in partnership with Uisce Éireann): Denis Moroney		

Summary of Key Findings

1. There is no treatment barrier to *Cryptosporidium* entering the water supply from the boreholes serving the Scarriff Public Water Supply. Uisce Éireann were unable to confirm the protozoal log treatment requirement for the supply and no monitoring for *Cryptosporidium* in line with *Uisce Éireann's Rationale for Determining the Frequency of Cryptosporidium in Public Water Supplies* is currently taking place at the water treatment plant.

2. There are no plant shutdowns in place based on chlorine residual levels after chlorine dosing and after contact time has been achieved to prevent inadequately treated water entering the supply.

Introduction

Scarriff Public Water Supply (PWS) serves a population of approximately 851 people and produces 525 m3 of treated water per day. Raw water is sourced from three boreholes. A fourth borehole located 2km west of the water treatment plant (WTP) is used to augment the supply when necessary and can provide up to 43 m3/day. Treatment of the combined water consists of chlorination. The treated water is then fed to the on-site reservoir.

The audit was undertaken to assess Uisce Éireann's performance in producing clean and wholesome drinking 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 audit included an inspection of the water treatment plant and its critical monitoring equipment and controls. The borehole at the water treatment plant was also inspected as part of the audit.

1. Source Protection

		Answer
1.1	Is the abstraction source(s) adequately protected against contamination?	No

Comment

1. Abstraction for the supply is from three boreholes. There is one active borehole at the WTP referred to as the 'new borehole' which was visited during the audit. This borehole is located below ground level in a concrete chamber with a lockable manhole lid. On the day of the audit, some ingress of surface water on the base of the chamber was evident.

2. The other two boreholes are located 7 km from the WTP and operate in a duty/standby arrangement, producing approximately 290 m3/day. These were not visited during the audit. Clare County Council advised that security is poor at these boreholes.

3. A fourth borehole is located 2km from the plant and is used to augment the supply, when required.

2. Management and Control

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

Comment

1. The protozoal compliance log treatment requirement for the plant has been provisionally assigned as log 3 pending completion of the sanitary survey. This give a - 3 log treatment deficit.

2. At present, there is no monitoring being carried out in accordance with the *Uisce Éireann Rationale for Monitoring Cryptosporidium in Public Water Supplies*.

3. There is no treatment barrier to *Cryptosporidium* entering the water supply from the boreholes serving the supply.

3. Alarms, Inhibits & Oversight Audits 2023

		Answer
3.1	Did staff confirm they have received training on the site specific incident response and incident escalation process?	No

Comment

1. The caretaker at the WTP confirmed that training on the site specific incident response and incident escalation process had not been received.

		Answer
3.2	Is continuous monitoring located appropriately to verify treatment performance?	No

Comment

1. A review of data from the residual chlorine monitor after dosing (CL001) showed erratic spikes between 21/11/2023 and 23/11/2023. Clare County Council stated that inconsistent flow through CL001 is causing the spikes in the trend data and that they are not responding to alarms from that monitor.

		Answer
3.3	Are dial out arrangements suitable to allow a timely response?	No

Comment

1. There is no alarm cascade system in place on this supply. The caretaker is the only person who is currently notified of the dial out alarms.

		Answer
3.4	Were all findings of the UÉ alarm and inhibit review implemented?	No

Comment

1. Uisce Éireann advised that the findings of the Alarm and Inhibit review had not been finalised.

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

Comment

1. There are no shutdowns based on low or high chlorine in the final water.

2. At the time of the audit, there was a 2000 second (33.3 minutes) system delay for the chlorine alarms. The EPA's Water Treatment Manual: Disinfection recommends a maximum of 5 minutes delay on chlorine alarms.

		Answer
3.6	Are plant performance trends accessible by operational staff at the water treatment plant?	No

Comment

1. The residual chlorine trend was visible on the plant HMI and indicated stable trends for CL002, however it has limited functionality as the HMI screens are small, difficult to navigate and it is not possible to view trends for more than 7 days at any one time. A dedicated SCADA terminal at the the treatment plant would allow operational staff increased ease of access to plant process information and trended performance data.

		Answer
3.7	Are plant performance trends accessible remotely?	No

Comment

1. Uisce Éireann advised that they do not have remote access to performance trend data from the plant.

		Answer
3.8	Is there appropriate oversight of plant performance trends?	No

Comment

1. On the day of the audit, there was no information available on how plant performance trend data is reviewed by supervisory staff.

		Answer
3.9	Is there appropriate oversight of alarm responses?	No

Comment

1. There is no cascade system in place. The caretaker is the only person getting alarms.

		Answer
3.10	Is there a documented alarm response procedure?	No

Comment

1. On the day of the audit, it was not confirmed if there was a documented alarm procedure in place.

		Answer
3.11	Did staff confirm they have been trained on the alarm response procedure?	No

Comment

1. On the day of the audit, it was not confirmed if staff had been trained on the alarm response procedure.

		Answer
3.12	Are there appropriate procedures covering verification of alarms and inhibits status following maintenance or other work on site?	No

Comment

1. It could not be confirmed at the audit if there are procedures covering verification of alarms following maintenance or other work on site.

Recommendations

Subject	Scarriff PWS - Audit Report	Due Date	15/01/2024
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. a) Confirm the protozoal log treatment requirement for the plant; b) identify how the log treatment deficit will be addressed and c) monitor the supply in accordance with the *Uisce Éireann Rationale for Monitoring Cryptosporidium in Public Water Supplies*. 2. Disinfection: a) Ensure the residual chlorine monitor (post dosing) is in the correct location and working appropriately. This monitor should be alarmed and linked to a recording device to ensure that a failure of the chlorine dosing system is immediately detected; b) Install automatic shutdown based on low and high levels for chlorine in the final water to ensure adequate disinfection in line with EPA Water Treatment Manual: Disinfection. 3. Implement the findings of the Alarm and Inhibit review to protect treatment processes and treated water quality. 4. Ensure that a) a formal site specific alarm response procedure is in place at the treatment plant. The procedure should clearly document the corrective actions and set out delegation of responsibilities for operational and relief staff; b) provide training to relevant staff on the requirements of the alarm response procedure. 5. Ensure that a) the treatment plant is connected to the county SCADA system; b) that plant process information and trended performance data are available to operational and supervisory staff via SCADA and c) that there are robust systems of review and checks on water treatment plant performance data which should include regular review of SCADA trends by operational and supervisory staff. 6. 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. 7. Source Protection: a) ensure all raw water sources are made secure; b) ensure all chambers are adequately sealed and maintained to prevent surface water ingress and c) have regard to EPA Advice Note No.14: Borehole Construction and Wellhead Protection when carrying out these works. 8. Put in place an appropriate cascade system for responding to alarms generated at the plant. **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 15/01/2023 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.		