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	Clonbullogue PWS
Organisation	Uisce Éireann
Scheme Code	2500PUB1004
County	Offaly
Site Visit Reference No.	SV29571

Report Detail

Issue Date	30/05/2024
Prepared By	Lisa Noone

Site Visit Detail

Date Of Inspection	02/05/2024	**Announced**	Yes
Time In	11:00	**Time Out**	13:00
EPA Inspector(s) **Additional Visitors**	Lisa Noone		
Company Personnel	Uisce Éireann: Daniel Behan, David Doyle, Catherine Casey Offaly County Council (working on behalf of Uisce Éireann): Eddie Kaye		

Summary of Key Findings

1. The EPA is concerned at the findings of the audit carried out at Clonbullogue Water Treatment Plant (WTP) in relation to the general management and oversight of the plant and its daily operation.

2. The audit found that the incident was not managed or escalated appropriately due to a lack of oversight, procedures and training for operational staff.

3. The raw water source is not adequately protected from surface water influence or agricultural runoff due to damaged hardstanding and boundaries at the WTP.

Introduction

Clonbullogue Public Water Supply (PWS) produces circa. 180 m3/day of water serving a population of approximately 800 people. Raw water is abstracted from the Figile River Well, a spring water source located at the WTP. Treatment consists of primary disinfection by UV via duty and standby UV units, and secondary disinfection by chlorination.

The audit was conducted in response to a chlorine dosing failure and subsequent imposition of a Boil Water Notice (BWN) on the supply from to April 4th 2024 to April 9th 2023. In addition, the audit also focused on the alarms and inhibits in place at the WTP and the procedures in place to ensure appropriate oversight of treatment processes.

Supply Zones Areas Inspected

The spring source at Figile River Well inspected as part of the audit, in addition to treatment processes on-site. The treated water reservoir off-site was not inspected as part of this audit.

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?	No

Comment

1. A specialist contractor attended Clonbullogue WTP on the 3rd of April 2024 to carry out necessary works identified during an Uisce Éireann Alarm and Inhibit Review. Following site maintenance, the contractor verified alarms and inhibits were in operation, however Uisce Éireann or Offaly County Council personnel were not on site at the time to confirm this. There was no procedure in place for caretakers or contractors to check and sign-off that all alarms have been correctly re-set on completion of maintenance work.

2. Later on that day, the WTP's PLC malfunctioned and reverted to original factory settings, thereby rendering all alarms and inhibits defunct and causing the chlorine dosing system to fail. The chlorine system failure resulted in an increase in chlorine dosing from 13.30 to 20.30. The chlorine day tank subsequently ran dry, causing chlorine dosing to cease, resulting in a lack of secondary disinfection to ensure adequate network protection.

3. The UV system was not affected by the PLC failure, and operated throughout the incident providing adequate primary disinfection.

4. The plant caretaker was initially made aware of a potential issue at the plant via two separate phone calls made by local residents regarding a strong taste from the water at approximately 6pm.

5. The caretaker did not have remote access to SCADA to assess the plant operation and verify the cause of the taste complaints, and did not attend the WTP on the 3rd of April. The plant supervisor or alternative personnel who could access the SCADA system were not contacted at this time to investigate the cause of the complaints.

6. The site caretaker visited the WTP and the offsite reservoir on the morning of the 4th of April, and noted the chlorine day tank was empty and the residual chlorine readings were inaccurate. The offsite reservoir was overflowing when inspected by the caretaker.

7. At this point, the caretaker contacted the contractor who had been carrying out works on the site on the previous day, and a member of Uisce Éireann who had carried out the Alarms and Inhibits review. The incident was then escalated within Uisce Éireann who initiated the INR process with the HSE and a Boil Water Notice was placed on the supply on the 4th of April. The incident was not escalated appropriately in accordance with the site specific incident response and incident escalation process.

8. The EPA were notified of the incident and subsequent Boil Water Notice on the 4th of April 2024.

9. The chlorine day tank was refilled and the dosing issue was resolved at approximately 6pm on the 4th of April and the WTP was operating satisfactorily.

10. Although the plant was operating normally and network chlorine residual readings were satisfactory, issues relating to the chlorine monitor probe remained. Prior to the incident, chlorine was dosed via Control Option C (flow proportional and residual trim) and had to be reset to Control Option A (flow proportional) as an interim measure until a replacement probe can be installed. Following the switch to Control Option A, the BWN was lifted on the 9th of April 2024.

2. Source Protection

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

Comment

1. Clonbullogue WTP is located in a small fenced off section of a field containing livestock. The well is located within this boundary, directly adjacent to the River Figile.

2. The ground level of the WTP is approximately 1.5 feet lower than the natural fall of the surrounding agricultural land, and soil/runoff from the field was observed falling through the boundary fence of the WTP. The hardstanding surrounding the well was observed to be cracked, and in the event of heavy rainfall could lead to agricultural runoff entering the raw water supply.

3. In addition, due to the proximity of the spring well to the River Figile, a heavy rainfall event could also lead to surface water influx via the cracked hardstanding.

4. Uisce Éireann could not demonstrate that landowners had been formally written to about the presence of a drinking water supply in proximity to their lands and their obligations under the *European Union (Good Agricultural Practice for the Protection of Waters) Regulations 2022*, as amended.

5. A source and sanitary survey has not been completely for Clonbullogue PWS.

3. Alarms, Inhibits & Oversight Audits 2024

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

Comment

1. A documented site specific incident response and incident escalation process is in place however there were no records to confirm that operational staff had received appropriate training into how incidents should be escalated.

		Answer
3.2	Were online monitors operational?	No

Comment

1. The residual chlorine monitor probe is not operating correctly and dosing has been reset to Control Option A (flow proportional) as an interim measure until a replacement probe can be installed.

		Answer
3.3	Are critical alarms dialled out to operators?	No

Comment

1. Prior to the Alarms and Inhibits audit carried out by Uisce Éireann, it was noted that alarms had not been dialling out since January 2023. The plant supervisor was not aware of this until the day of the audit.

2. The main caretaker is the only operator at present who receives an alarm in the event deteriorating water quality or the failure of a critical treatment process. The standby caretaker or supervisor do not receive any alarms.

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

		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. The 15 minute time delay was in place for raw water turbidity on the day of the audit. This is considered too long to allow a timely and effective response by operational staff to ensure a turbidity of less than 1NTU prior to disinfection.

		Answer
3.6	Are plant performance trends accessible remotely?	No

Comment

1. The main caretaker does not have access to SCADA due to password-related issues. Issues relating to SCADA access were not identified until the incident took place on the 3rd of April.

		Answer
3.7	Did plant performance trends demonstrate that data was being captured and recorded at all times?	No

Comment

1. Issues were identified during the audit relating to the retrieval of live data from the chlorine dosing schematic. SCADA readings for reservoir level, chlorine residual and flow to distribution were inaccurate.

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

Comment

1. There is no oversight of plant performance trends by the main caretaker due to SCADA access issues.

2. The plant supervisor stated that in general, he reviews trends on a weekly basis.

		Answer
3.9	Is there a documented alarm response procedure?	No

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

Recommendations

Subject	Clonbullogue PWS Audit Recommendations	Due Date	02/07/2024
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. Ensure that (i) the Uisce Éireann Incident Communication Response Guidance Form displayed at the WTP contains site specific information including contacts for escalation and relevant site specific trigger levels protecting critical processes at the WTP, (ii) training is provided to WTP operators on the requirements of the Uisce Éireann Incident Communication Response Guidance Form to ensure incidents are recognised, escalated and acted upon promptly. 2. Ensure (i) that critical alarms are dialled out to plant operators and relevant supervisory personnel (ii) there is a cascade system for responding to alarms generated at the plant, (iii) there is a documented procedure in place for responding to and escalating all alarms generated at the water treatment plant. The procedure should clearly document the corrective actions and set out delegation of responsibilities and (iv) ensure that all staff are trained on the alarm response procedures. 3. Ensure there are robust systems of reviews and checks on water treatment plant performance and the status of alarms and inhibits, and act on any deficiencies identified to protect public health and maintain drinking water quality. This recommendation covers actions on staff training, operating procedures, and establishing managerial and process oversight of process operations and data. 4. Provide details on the findings of the contractor's investigation into the failure of the PLC, and actions proposed by Uisce Éireann to prevent reoccurrence. 5. Develop a procedure and deliver appropriate training covering the verification of alarms/shutdowns status following maintenance or other works completed at the treatment plant. 6. Provide suitable SCADA access and training to site operators and ensure there is appropriate oversight of plant performance trends by operational and supervisory personnel. 7. Liaise with Offaly County Council to ensure that local landowners have been written to in accordance with the *European Union (Good Agricultural Practice for Protection of Waters Regulations) Regulations 2022*, as amended. 8. Ensure that wellheads are repaired, sealed and protected from surface water influence or agricultural runoff in accordance with *EPA Advice Note No. 14: Borehole Construction and Wellhead Protection,* 9. Complete a Source and Sanitary Survey to confirm the log treatment requirement for the supply. 10. Repair or replace the chlorine residual monitor probe currently in use and ensure all monitors are appropriately maintained. 11. Review alarm set points and time delays in place for turbidity. **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 the above date 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.		