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	Crossmolina PWS
Organisation	Uisce Éireann
Scheme Code	2200PUB1013
County	Mayo
Site Visit Reference No.	SV30719

Report Detail

Issue Date	19/12/2024
Prepared By	Jennifer Brady

Site Visit Detail

Date Of Inspection	05/12/2024	**Announced**	No
Time In	11:00	**Time Out**	11:45
EPA Inspector(s)	Jennifer Brady		
Additional Visitors	N/A		
Company Personnel	Uisce Éireann: Brian Conmy, Siobhan Sheridan Mayo County Council (working in partnership with Uisce Éireann): Catherine Hanghan, Eddie Munnelly & Sean Keane.		

Summary of Key Findings

1. Disinfection consists of Chlorination only.

2. Network chlorine residuals are monitored in the Crossmolina water supply once per week. A suitable monitoring frequency (a minimum of 2-3 times per week) is recommended to verify that there is a minimum chlorine residual of 0.1 mg/l throughout the network to ensure that consumers are receiving adequately disinfected water.

Introduction

The Crossmolina Public Water Supply (PWS) produces approximately 650 m3/hour serving a population of 1,153. Raw water is abstracted from a spring located approximately 1km from the water treatment plant (WTP). Treatment consists of disinfection via chlorination and treated water is stored at an on-site reservoir.

Supply Zones Areas Inspected

This audit assessed the chlorination disinfection system at the Crossmolina Water Treatment Plant.

1. Disinfection Audits 2024

		Answer
1.1	Is chlorination used for primary disinfection?	Yes

		Answer
1.2	Did Uisce Éireann confirm the type of chlorine disinfectant in use?	Yes

Comment

Uisce Éireann confirmed that the chlorine disinfectant in use is 10% Sodium Hypochlorite.

		Answer
1.3	Are there duty and standby chlorine dosing pumps in place?	Yes

Comment

Uisce Éireann confirmed there is regular switch over between duty/standby pumps every 24 hours.

		Answer
1.4	Is there automatic switchover in the event of failure of one of the chlorine dosing pumps?	Yes

Comment

Uisce Éireann confirmed that the automatic changeover facility is regularly checked to ensure it is working efficiently.

		Answer
1.5	Is the chlorine dosing rate flow proportional?	Yes

		Answer
1.6	Is there a continuous residual chlorine monitor, with alarm, to verify chlorine dosing is taking place at the target level?	Yes

		Answer

1.7	Is there a continuous residual chlorine monitor, with alarm, at a suitable sample location after contact time has been completed?	Yes

Comment

Uisce Éireann confirmed that there is two monitors present one on the inlet and a second on the outlet.

		Answer
1.8	Can data trends from the online residual monitor be viewed on site?	Yes

Comment

Trends were available on site to view on HMI/SCADA and it was confirmed by Uisce Éireann that trends can also be viewed remotely so operators have access to the data to monitor the trends off site.

		Answer
1.9	Are there low and high chlorine alarm settings on each chlorine monitor?	Yes

Comment

The low and high chlorine alarm settings of each chlorine monitor are outlined in the alarm response procedure.

There is two chlorine monitors on site.

Chlorine Alarm CL001: Low (0.4) High (1.5) Delay Time: 300 seconds

Chlorine Alarm CL002: Low (0.5) High (1.2) Delay Time: 300 seconds

		Answer
1.10	Is there a documented alarm response procedure for responding to chlorine alarms?	Yes

Comment

There is a documented alarm procedure in place containing the alarm setpoints and procedure. The alarms are triggered by a text alert message which is sent to the Primary Caretaker, Relief Caretaker and Environmental Technician and contact is made between the text message recipients to ensure the incident is responded to.

		Answer
1.11	Have staff been trained on the chlorine alarm response procedure?	Yes

Comment

Training has been provided to all staff on the response procedure and Uisce Éireann ensured that training records are available.

		Answer
1.12	Are chlorine alarms dialled out via a cascade system to allow a timely response by plant operators?	Yes

Comment

2 personnel receive the alarms. The alarm is sent to the first individual and if un-responsive, the alarm cascades to the second individual.

		Answer
1.13	Is there automatic shutdown of the supply in the event of the chlorine level dropping below the low level or rising above the high chlorine alarm setting?	Yes

		Answer
1.14	Are service due / monitoring instrument calibration dates for the chlorine monitors within date?	Yes

Comment

Both chlorine monitors were last serviced/calibrated on the 04/12/2024 and the next service/calibration due was the 04/06/2025.

		Answer
1.15	Is the site specific target contact time being achieved?	Yes

Comment

The Total Effective Ct after (t) 46.13 minutes exceeds the Target Ct of 19.80 mg.min/l therefore the site specific target contact time is being achieved.

		Answer
1.16	Is the minimum effective contact time of 15 mg. min/l being achieved?	Yes

Comment

Uisce Éireann confirmed a minimum effective contact time of 20.76 mg.min/l was being achieved.

		Answer
1.17	Is the residual chlorine level ≥ 0.1 mg/l at the extremity of the distribution network?	Yes

Comment

Uisce Éireann confirmed monitoring locations showing the extent of the network. A total of 12 monitoring locations can be observed on a monthly schedule. All monitoring locations observed on the day of the audit for monitoring in November 2024 were > 0.1 mg/l.

		Answer
1.18	Is monitoring of network residual chlorine undertaken several times per week?	No

Comment

Network chlorine residuals are monitored in the Crossmolina water supply at two locations (Moylaw and Benjary) every day, however the monitoring frequency at other locations in the network is sporadic. A suitable monitoring frequency (a minimum of every 2-3 days) is recommended to verify that there is a minimum chlorine residual of 0.1 mg throughout the network including the extremities to ensure that consumers are receiving adequately disinfected water.

Recommendations

Subject	Crossmolina Disinfection Audit 2024	**Due Date**	24/01/2025
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. Network Monitoring: Ensure the monitoring of residual chlorine is undertaken several (two to three) times per week at different points of the network to include network extremities. Network chlorine residuals are monitored in the Crossmolina water supply at two locations (Moylaw and Benjary) every day, however the monitoring frequency at other locations in the network is sporadic. Other network chlorine residuals are monitored in the Crossmolina water supply once per week. A suitable monitoring frequency (a minimum of 2-3 times per week) is recommended to verify that there is a minimum chlorine residual of 0.1 mg/l throughout the network to ensure that consumers are receiving adequately disinfected water. **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 [24/01/2025] 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.		