

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	Ballykenley/Johnstown
Organisation	Uisce Éireann
Scheme Code	0500PUB1501
County	Cork
Site Visit Reference No.	SV28351

Report Detail	
Issue Date	05/12/2023
Prepared By	Paul Buckley

Site Visit Detail			
Date Of Inspection	08/11/2023	Announced	Yes
Time In	10:20	Time Out	12:15
EPA Inspector(s)	Paul Buckley Criona Doyle		
Additional Visitors			
Company Personnel	Uisce Éireann: Sharon O'Dwyer, Claire Hurley, Ciarán Connolly, Cormac Bergin. Cork County Council (working in partnership with Uisce Éireann): Diarmuid Cronin, Timothy Hegarty, Pauline McAree, Frances Whoriskey.		

> Summary of Key Findings

1. There was a *Giardia* detection in the Ballykenley/Johnstown public water supply (PWS) on 14/06/2022 at the final water tap at the Ballykenley water treatment plant (WTP). At the audit Uisce Éireann advised that investigations carried out into the cause of the *Giardia* detection were inconclusive. Monitoring results reviewed during the audit showed that no detections of *Giardia* had occurred since the initial detection. An ultraviolet (UV) disinfection system was installed at the Ballykenley water treatment plant following the *Giardia* detection. Uisce Éireann advised during the audit that the UV system is still undergoing process validation.
2. The location of the residual chlorine monitor is within the Johnstown water treatment plant reservoir. This is not an appropriate location for chlorine contact time verification as the reservoir receives additional treated water from the Ballykenley water treatment plant.
3. There is no turbidity monitor with alarms and inhibits in place at the Johnstown water treatment plant to prevent inadequately treated water entering the network.

> Introduction

The Ballykenley/Johnstown Public Water Supply (PWS) supplies an average of 782 m³/day of water, serving a population of 1,015.

There are two water treatment plants (WTP) for this supply. Treatment consists of ultraviolet and chlorination at the Ballykenley WTP (spring source), and chlorination at the Johnstown WTP (borehole source). This is not reflective of the volume and treatment types listed on the EPA EDEN system.

The audit was undertaken to assess Uisce Éireann's performance in producing clean and wholesome water at the water treatment plants and the procedures in place to ensure appropriate oversight of treatment processes.

> Supply Zones Areas Inspected

The spring source, UV and chlorination disinfection systems at the Ballykenley water treatment plant, and the borehole source and chlorination disinfection system at the Johnstown water treatment plant were inspected.



1. Disinfection

	Answer	
1.1	Is the UV system suitably validated?	No
Comment		
<p>A UV disinfection system has been installed on the Ballykenley spring portion of the supply. The disinfection system was still undergoing process validation at the time of the audit.</p> <p>Plates detailing the validation criteria for the UV unit have yet to be installed by the contractor.</p>		

	Answer	
1.2	Is the residual chlorine monitored at a suitable sample location after contact time has been completed?	No
Comment		
<p>There is no residual chlorine monitor located after contact time for verification purposes at the Johnstown borehole. Uisce Éireann confirmed that primary disinfection at the Johnstown WTP is provided by chlorination.</p> <p>There is an online chlorine monitor which samples from the on-site reservoir but the sampling point is not located after contact time has been achieved.</p>		



2. Management and Control

	Answer	
2.1	Has the protozoal compliance log treatment requirement been identified for the water treatment plant?	No
Comment		
<p>The protozoal compliance log treatment requirement has not been finalised for the Ballykenley or Johnstown WTPs. The log treatment requirement has been provisionally classed as Log 3 for both, pending the review of the sanitary survey.</p> <p>Following the <i>Giardia</i> detection in the Ballkenley section of the public water supply on 14/06/2022, Uisce Éireann installed an ultraviolet disinfection system at the Ballykenley WTP.</p>		

	Answer	
2.2	Are suitable plant shutdowns/inhibits in place to prevent the entry of inadequately treated water entering the distribution network?	No
Comment		
<p>There is no monitor to verify chlorine contact time and there is no continuous turbidity monitor with alarm to verify that turbidity remains < 1 NTU at all times at the Johnstown WTP.</p> <p>Uisce Éireann indicated during the audit that the installation of a turbidity monitor and associated alarms is to be carried out as part of the National Disinfection Programme.</p>		

	Answer	
2.3	Are instrument calibrations within date?	No
Comment		
<p>During the audit it was noted the turbidity monitor at the Johnstown WTP did not have an adequate calibration sticker displayed. The next "calibration due by" date was not shown on the label.</p>		

Recommendations

Subject	Ballykenley/Johnstown Audit Recommendations 08/11/2023	Due Date	05/01/2024
Action Text	<p>Uisce Éireann is responsible for ensuring a clean and wholesome supply of drinking water and should implement the following recommendations without delay.</p> <ol style="list-style-type: none">1. UV: i) Provide two months of monitoring trends from the UV unit to demonstrate that the UV disinfection system is operating within its validated range, and ii) ensure plates are installed on each UV unit detailing the validation criteria.2. i) Confirm the protozoal log treatment requirement for the Ballykenley WTP and the Johnstown WTP; ii) confirm how any protozoal log deficit will be addressed, and iii) undertake monitoring for <i>Cryptosporidium</i> at the Johnstown WTP as per the Uisce Éireann Rationale for Determining the Frequency of <i>Cryptosporidium</i> in Public Water supplies.3. Install a continuous turbidity monitor on the final treated water at the Johnstown WTP and ensure that appropriate alarms/shutdowns are in place.4. Install a continuous chlorine monitor with suitable alarms and shutdowns after contact time has been achieved at the Johnstown WTP.5. Provide details of the scope of the works to be undertaken under the Uisce Éireann's National Disinfection Programme, including a timeframe for the completion of any proposed upgrades.6. Ensure all plant monitors are calibrated in accordance with manufacturer's instructions, and clearly labelled to show the date of calibration and the next 'calibration due by' date.7. Update EDEN with the current daily volume produced and the correct treatment in place on this supply. <p>Actions required by Uisce Éireann</p> <p>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.</p> <p>Uisce Éireann should submit a report to the EPA on or before 05/01/2024 detailing the actions taken and planned, with timescales, to close out the above recommendations.</p> <p>The EPA advises that the findings and recommendations from this audit report should, where relevant, be addressed at other public water supplies.</p>		