

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	Bandon Regional
Organisation	Uisce Éireann
Scheme Code	0500PUB2101
County	Cork
Site Visit Reference No.	SV28399

Report Detail	
Issue Date	14/12/2023
Prepared By	Criona Doyle

Site Visit Detail			
Date Of Inspection	29/11/2023	Announced	Yes
Time In	10:25	Time Out	12:30
EPA Inspector(s)	Criona Doyle		
Additional Visitors			
Company Personnel	Uisce Eireann: Brian Flynn, Phil Elvins, Tommy Roche. Cork County Council (working in partnership with Uisce Éireann): David Cotter, Oliver Forbes, David Carroll, Billy Kearney, Pauline McAree		

> Summary of Key Findings

1. The audit found that Bandon Water Treatment Plant was operating satisfactorily on the day of the audit.
2. There is no verified protozoal barrier in place at Bandon Water Treatment Plant (WTP). The filtration stage is not being operated in accordance with the log performance criteria outlined in the EPA Water Treatment Manual: Filtration.

> Introduction

The Bandon Public Water Supply (PWS) supplies an average of 4,256m³/d of water serving a population of 9,170. Raw water is obtained from the River Bandon. Treatment includes coagulation, flocculation, rapid gravity filtration, pH correction, disinfection and fluoridation.

The audit was undertaken to assess Uisce Éireann's performance in producing clean and wholesome water with a focus on the protozoal barriers in place at the water treatment plant (WTP).

> Supply Zones Areas Inspected

The audit consisted of an inspection of the coagulation, filtration and disinfection treatment stages.



1. Coagulation Flocculation and Clarification (CFC) Stage

		Answer
1.1	Is the pH within a suitable range for the coagulant used?	No
Comment		
There is no pH monitor in operation on the raw water to verify the pH on a continuous basis. pH readings are taken using a hand held instrument on a daily basis and when jar testing is undertaken.		

		Answer
1.2	Were the CFC tanks, channels and weirs observed to be clean, level and well maintained during the audit?	No
Comment		
The internal surface of the collection channels were observed to be clean and level and well maintained. A build up of material was observed underneath the channels and on the walls of the sedimentation tanks.		



2. Protozoal Barriers Audits 2023

	Answer	
2.1	Has UÉ identified the protozoal compliance log treatment requirement for the water treatment plant?	No
Comment		
The site sanitary survey was completed in 2022. Uisce Éireann confirmed that the peer review is due to be completed by the end of 2023 at which time the protozoal log treatment requirement for the water treatment plant will be confirmed.		

	Answer	
2.2	Did UÉ confirm whether <i>Cryptosporidium</i> monitoring under the Rationale for Determining the Frequency of <i>Cryptosporidium</i> in Public Water Supplies is being carried out?	No
Comment		
Monitoring for <i>Cryptosporidium</i> and <i>Giardia</i> is being undertaken 8 times per annum. Cork County Council confirmed at the audit that it is planned to increase the monitoring frequency to 12 times per annum.		

	Answer	
2.3	Are the filters designed and managed in accordance with EPA guidance?	No
Comment		
There are no marker posts installed in the filters to display the current depth of filter media. Information provided on 01/12/2023 subsequent to the audit confirmed that the filter media depth in the 3 no. rapid gravity filters ranges from 730 mm to 760 mm. This is less than the 1,000mm minimum recommended depth in the EPA Water Treatment Manual: Filtration. Mottling was visible on the top surface of the filter media indicating the possible presence of mudballs.		
There is no facility for automatic backwashing of the filters. Backwashing is not triggered by the turbidity alarm setpoints or triggered by headloss. Each filter is manually backwashed every 3 days.		
There is a delayed start prior to returning filters to service.		

	Answer	
2.4	Are there suitable plant controls to prevent inadequately treated water entering the distribution network?	No
Comment		

There are no turbidity alarms on the 3 no. individual filters to take an individual filter out of service in the event the turbidity of an individual filter exceeds 0.3 NTU. The WTP shuts down in the event the combined filtered water turbidity > 0.5 NTU (180 seconds time delay). There is a warning alarm on the combined filtered water turbidity > 0.3 NTU (180 seconds time delay).

There is no automatic filter backwashing in response to the turbidity in an individual filter exceeding 0.3 NTU.

		Answer
2.5	Are alarms and shutdowns on each filter, on the combined filtered water and final water in accordance with the EPA Filtration Manual?	No
Comment		
There are no turbidity alarms or shutdowns on the 3 no. individual filters.		

		Answer
2.6	Are relevant alarms dialled out to allow a timely response by operational staff?	No
Comment		
Level 1 chlorine and turbidity alarms which trigger plant shut down are notified to staff when on site via the HMI and also are dialled out to staff via mobile phone.		
Level 2 chlorine or turbidity warning alarms are not dialled out to staff on mobile phone and are only visible to staff while at the WTP.		



3. Site Specific Issues

	Answer
3.1 Is regular coagulant residual monitoring taking place ?	No
Comment	
The records on site indicated compliant residual aluminium monitoring results however monitoring is not taking place several times per week.	

Recommendations

Subject	Bandon PWS - Audit	Due Date	14/01/2024
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. (i) Confirm the protozoal log treatment requirement for the supply; (ii) confirm how the protozoal log deficit will be addressed and (iii) undertake monitoring for <i>Cryptosporidium</i> as per the Uisce Éireann Rationale for Determining the Frequency of <i>Cryptosporidium</i> in Public Water supplies.2. Ensure the filtration stage operates in accordance with the log credit approach as outlined in the EPA Water Treatment Manual: Filtration to include (i) installation of turbidity monitors with appropriate alarms and inhibits on each individual filter; (ii) ensure the filter media depth meets the minimum depth requirements; (iii) automatic backwashing is linked to turbidity alarm setpoint; (iv) ensure the filters run to waste for an appropriate period of time after backwashing (v) install depth marker posts for the filter media.3. Install a pH monitor on the raw water.4. Undertake monitoring of the residual aluminium monitoring at the WTP several times per week and maintain records on site.5. Ensure the walls of sedimentation tanks and area underneath the collection channels are regularly cleaned down.6. Review alarm and inhibit setpoints at the treatment plant and install appropriate warning alarms, where absent, to alert operators of deteriorating water quality or problems with a critical treatment process before a plant shutdown occurs. <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 14/01/2024 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>		