

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	Waterville PWS 075H
Organisation	Uisce Éireann
Scheme Code	1300PUB1057
County	Kerry
Site Visit Reference No.	SV27807

Report Detail	
Issue Date	23/05/2023
Prepared By	Regina Campbell

Site Visit Detail			
Date Of Inspection	11/05/2023	Announced	Yes
Time In	11:00	Time Out	13:00
EPA Inspector(s)	Regina Campbell		
Additional Visitors			
Company Personnel	Uisce Éireann: Tommy Roche, Michael Byrne and Denis Hayes. Kerry County Council: Brian Lennon. EPS (operating under DBO contract to Uisce Éireann): Denise Collins and Bryan Berry.		

> Summary of Key Findings

1. The plant was operating satisfactorily on the day of the audit.
2. There is no automatic switchover in the event that the duty UV unit operates outside of its validated range.
3. The continuous UVT monitor has not been in operation since December 2022. Twice daily UVT readings are being taken with a handheld monitor until the UVT monitor is replaced.

> Introduction

The Waterville Public Water Supply (PWS) serves a population of 1,470 and produces 1,500 m³/day. The Waterville Water Treatment Plant (WTP) is operated by EPS on behalf of Uisce Éireann under a Design, Build, Operate (DBO) contract.

Currently the WTP is being supplied with raw water from Lough Currane. In previous years raw water has been sourced from the River Finglas but the operator said that the river water has been of poor quality due to extremely heavy rainfall over the winter.

Treatment consists of pH correction, coagulation, DAFF (dissolved air flotation and filtration), UV, chlorination and final water pH correction. Treated water is fed to 2 no. on-site reservoirs which supply Waterville, Ballinskelligs and the surrounding areas.

The focus of the audit was on alarms and inhibits and oversight of treatment processes.

> Supply Zones Areas Inspected

The treatment processes at the Waterville WTP were examined.



1. Filtration

	Answer
1.1	Are the filters designed and managed in accordance with EPA guidance? Comment The operator was not able to confirm the depth of the filter media on the day of the audit and there is no media depth gauge. Turbidity after the DAFF was 0.04 NTU at the audit and trends viewed showed satisfactory performance.



2. Disinfection

		Answer
2.1	Are duty and standby chlorine pumps/ UV units in operation?	No
Comment		
<p>There are duty and standby UV units in place. However, there is no automatic switchover in the event that the duty UV unit operates outside of the validated range.</p> <p>There are duty and standby chlorine dosing pumps with automatic switchover in place.</p>		

		Answer
2.2	Is there a suitable monitoring frequency for residual chlorine in the network with records available?	No
Comment		
<p>A sample of records viewed showed that there were gaps of up to 7 days between monitoring results for residual chlorine in the network.</p>		



3. Management and Control

		Answer
3.1	Has the protozoal compliance log treatment requirement been identified for the water treatment plant?	No
Comment		
Uisce Éireann said that a sanitary survey must be completed prior to confirming the protozoal log treatment requirement for the WTP.		



4. Alarms, Inhibits & Oversight Audits 2023

		Answer
4.1	Is there a documented site specific incident response and incident escalation process?	No
Comment		
<p>The plant is operated by EPS under a Design, Build, Operate (DBO) Contract. EPS outlined that documented alarm response procedures are in place which are regularly updated and accessible online. Daily reports are sent by operational staff to supervisory staff in EPS. Incidents at the plant are notified by EPS to the Uisce Éireann DBO lead and monthly performance reports are sent to Uisce Éireann.</p> <p>The plant is attended 7 days a week with alarm response cover in place 24 hours a day and seven days a week.</p> <p>The Uisce Éireann incident escalation flowchart with site specific contacts and trigger levels was not displayed at the plant.</p>		

		Answer
4.2	Is suitable continuous monitoring in place to verify treatment performance?	No
Comment		
<p>The UV units are Trojan D06 model and are validated to the USEPA validation standard. The UV unit is validated for flows up to 100m³/ hr and minimum UVT of 86%. EPS said that the online UVT monitor has not been operational since December 2022. There have been delays in getting the UVT monitor replaced. The UVT monitor is required to verify that the UV unit operates within its validated range at all times.</p> <p>EPS said that twice daily UVT readings are taken with a handheld monitor and the data inputted into the UV SCADA unit. Handheld readings of the pre UV water were averaging 98% UVT according to the trends viewed.</p>		

		Answer
4.3	Were online monitors operational?	No
Comment		
<p>As outlined in Section 4.2 above, the UVT monitor has not been operational since December 2022.</p>		

		Answer
4.4	Are suitable alarm settings in place to alert operators to deteriorating water quality or the failure of a critical treatment process?	No
Comment		

There is an online pH monitor for the final water but there are no high or low pH alarms in place. At the audit the pH of the final water was 6.64.

		Answer
4.5	Were all findings of the UÉ alarm and inhibit review implemented?	No
Comment		
Uisce Éireann have undertaken an alarm and inhibit review but the findings have not been implemented to date.		

		Answer
4.6	Are suitable plant shutdowns/inhibits in place to prevent the entry of inadequately treated water entering the distribution network?	No
Comment		
There are no shutdowns based on low or high chlorine in the final water or based on high turbidity in the final water.		
There is a low UVI alarm of 4 W/m ² in place. However it could not be confirmed at the audit at what UV dose the UVI low alarm activates.		



5. Site Specific Issues

		Answer
5.1	Is EDEN information correct?	No
Comment		
The EPA EDEN system reports a daily volume produced of 1,109 m ³ /day which is lower than the actual volume sent to supply of 1,500m ³ /day.		

Recommendations

Subject	Waterville Audit Recommendations	Due Date	23/06/2023
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. Confirm that the UVT monitor has been replaced and is operational with an appropriate alarm in place.2. Install automatic switchover of the duty and standby UV units in the event of failure of the duty UV unit to operate within its validated range.3. Confirm the low UV dose alarm setpoint.4. Confirm the current depth of media in the filter and ensure that it meets the minimum 1m depth as specified in the EPA Water Treatment Manual: Filtration.5. Confirm the protozoal log treatment requirement for the plant and confirm how any log treatment deficit will be addressed.6. Update EDEN with the current daily volume produced.7. Install shutdown of the plant based on a) high and low chlorine levels in the final water and b) high turbidity in the final water.8. Install low and high pH alarms for the final water.9. Implement the findings of the Uisce Éireann Alarm and Inhibit Review in order to protect treatment processes and treated water quality.10. Ensure that residual chlorine monitoring is undertaken in the extremities of the network several times a week. <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 23/06/23 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>		