

# 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	
<b>Name of Installation</b>	Callan PWS
<b>Organisation</b>	Uisce Éireann
<b>Scheme Code</b>	1500PUB1003
<b>County</b>	Kilkenny
<b>Site Visit Reference No.</b>	SV28060

Report Detail	
<b>Issue Date</b>	31/08/2023
<b>Prepared By</b>	Orla Harrington

Site Visit Detail			
<b>Date Of Inspection</b>	08/08/2023	<b>Announced</b>	Yes
<b>Time In</b>	11:05	<b>Time Out</b>	11:35
<b>EPA Inspector(s)</b>	Orla Harrington David O'Malley		
<b>Additional Visitors</b>	Emma Smith (Intern)		
<b>Company Personnel</b>	Uisce Éireann: Patrick Duggan, Denis McGrath.  Kilkenny County Council (working in partnership with Uisce Éireann): David O'Brien, Denis Lawlor, Kevin Hogan, Martin Egan.		

## > Summary of Key Findings

1. The Callan Public Water Supply was placed on the EPA's Remedial Action List in Q4 2021 due to inadequate treatment for *Cryptosporidium*. Uisce Éireann have installed a new ultraviolet disinfection system at the Callan water treatment plant. Primary disinfection is achieved by chlorination, and the UV disinfection system is designed to inactivate *Cryptosporidium*. The use of both methods is a multi-barrier approach which provides full-spectrum pathogen control, to help safeguard drinking water.
2. The audit found that the new UV disinfection system was operating within its validated range, and there were appropriate alarms and controls in place to ensure the UV system operates as a *Cryptosporidium* barrier.
3. Based on the findings of the audit, the EPA has removed the Callan Public Water Supply from the Remedial Action List in the Q2 2023 update.

## > Introduction

Callan Public Water Supply (PWS) supplies a population of 2,706 with a volume of approximately 1,012 m<sup>3</sup>/day. The supply is a mix of water from Westcourt spring located approximately 650m southwest of the water treatment plant (WTP) and a borehole supply located within the treatment plant site. Treatment consists of disinfection (chlorination and UV).

Callan PWS was placed on the EPA's Remedial Action List (RAL) in Q4 2021 due to inadequate treatment for *Cryptosporidium*. Uisce Éireann's RAL action programme involved the installation of UV disinfection at the Callan WTP to provide an adequate barrier to *Cryptosporidium* entering the water supply. Construction and commissioning is complete and the UV disinfection system was in operation at the time of the audit.

The purpose of the audit was to assess the suitability of the Callan PWS for removal from the EPA's RAL.

## > Supply Zones Areas Inspected

The audit comprised of an inspection of the new UV disinfection system at Callan water treatment plant.



1.1

Is the UV system suitably validated?

Answer

Yes

**Comment**

1. A new UV disinfection system has been installed to provide a barrier against *Cryptosporidium*. It is provided by an ATG UVLX-1800-6 UV disinfection system consisting of duty/standby units with automatic switchover if the duty UV fails for any reason.
2. The units are validated under the USEPA manual and Uisce Éireann provided a validation letter from the UV manufacturer subsequent to the audit, confirming that the UV system is validated to operate within a specified range. The UV units are validated to operate at a minimum UVT of 53% for a maximum design flow of 136 m<sup>3</sup>/hr. The UV units are linked to a continuous UVT and dose monitor. On the day of the audit, the HMI displayed the following for duty unit No. 1: UVT 98.5%, UV Dose 55 mJ/cm<sup>2</sup> and flow 44 m<sup>3</sup>/hr. The UV disinfection system was operating within its validated range during the audit.
3. The minimum validated dose is 12 mJ/cm<sup>2</sup> and the plant is alarmed and programmed to automatically shutdown if the UV dose falls below 12 mJ/cm<sup>2</sup> (delay of 120 seconds). There is also automatic shutdown of the UV system if the UVT reaches 85% (delay of 180 seconds).
4. Uisce Éireann stated that the Callan water supply sources have a 3 log protozoal treatment requirement and that a 12 mJ/cm<sup>2</sup> UV dose is required to achieve 3 log protozoan inactivation.
5. The trends for the UV units are available to view on the countywide SCADA which is accessible to all plant operators on their mobile devices. A copy of two months of trend data was provided by Uisce Éireann in advance of the audit and demonstrates that the UV units are operating effectively. A cascade system is in place to alert staff (via text) in the event of an alarm being triggered.



## 2. Supply on the Remedial Action List

	Answer
2.1 Do the audit findings support progress made with the Remedial Action List upgrades?	Yes
<b>Comment</b>	
1. The EPA audit found that Uisce Éireann have installed a new UV disinfection system to address the lack of a <i>Cryptosporidium</i> barrier and based on audit findings the EPA is satisfied to remove Callan PWS from the RAL.	



### 3. Site Specific Issues

	Answer
3.1 Is the plant operator fully trained on the operation and control of the UV disinfection system?	No
<b>Comment</b>	
<p>1. Glan Aqua were contracted by Uisce Éireann to deliver the new UV disinfection system. Uisce Éireann confirmed that plant operators will be provided with training of the UV disinfection system prior to the formal handover from Glan Aqua. A copy of standard operating procedures relating to the UV disinfection unit was available to view in the control room.</p>	

## Recommendations

<b>Subject</b>	Callan PWS - Audit Report	<b>Due Date</b>	02/10/2023
<b>Action Text</b>	<p><b>Uisce Éireann is responsible for ensuring a clean and wholesome supply of drinking water and should implement the following recommendation without delay.</b></p> <ol style="list-style-type: none"><li>1. Ensure operators of Callan water treatment plant are fully trained in the operation and control of the UV disinfection system.</li></ol> <p><b>Actions required by Uisce Éireann</b></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 02/10/2023 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>		