

# 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>	Carrickleck
<b>Organisation</b>	Uisce Éireann
<b>Scheme Code</b>	2300PUB1079
<b>County</b>	Meath
<b>Site Visit Reference No.</b>	SV30461

Report Detail	
<b>Issue Date</b>	07/10/2024
<b>Prepared By</b>	Lisa Noone

Site Visit Detail			
<b>Date Of Inspection</b>	18/09/2024	<b>Announced</b>	Yes
<b>Time In</b>	13:00	<b>Time Out</b>	14:00
<b>EPA Inspector(s)</b>	Lisa Noone		
<b>Additional Visitors</b>			
<b>Company Personnel</b>	Uisce Éireann: Joseph Moran, Jamie Blacoe Meath County Council (working in partnership with Uisce Éireann): Conor Grey		

## > Summary of Key Findings

1. There are no warning alarms or plant shutdown setpoints in place at Carrickleck Water Treatment Plant.
2. This is no standby UV unit in the event of failure of the duty unit, and there is no chlorination to maintain disinfection in the distribution network.
3. No plant process trends were available to staff at the treatment plant, or remotely, to inform plant operations.

## > Introduction

The Carrickleck Public Water Supply (PWS) produces circa. 2 m<sup>3</sup>/day of water serving a population of approximately 21 people. Raw water is abstracted from a single borehole located on private property adjacent to Carrickleck Water Treatment Plant (WTP) and treatment consists of filtration for nitrates and disinfection via UV only.

The audit was undertaken to assess Uisce Éireann's performance in producing clean and wholesome water with a focus on the alarms and inhibits in place at the water treatment plant WTP and the procedures in place to ensure appropriate oversight of treatment processes.

## > Supply Zones Areas Inspected

Treatment processes on-site were inspected as part of the audit. The borehole could not be inspected as it was located on private property.



## 1. Alarms, Inhibits & Oversight Audits 2024

	Answer	
1.1	Is suitable continuous monitoring in place to verify treatment performance?	No
<b>Comment</b>		
1. There is no final water turbidity monitor in place to prevent inadequately treated water entering the supply network.		

	Answer	
1.2	Are suitable alarm settings in place to alert operators to deteriorating water quality or the failure of a critical treatment process?	No
<b>Comment</b>		
1. There are no warning alarm setpoints in place at the treatment plant to alert operational staff in the event of deteriorating water quality or the failure of a critical treatment process.		
2. A flow meter and UV system status monitor are in place at the treatment plant and are checked when the plant is visited twice a week by the plant caretaker.		
3. An assets needs assessment was carried out on 18/05/2023 outlining the condition and needs of the plant. Uisce Éireann could not provide any update on the plans for the plant, whether it would be upgraded or rationalised. Uisce Éireann could not confirm why the lack of warning alarms or plant shutdowns protecting critical plant processes at the treatment plant have not been addressed to date.		

	Answer	
1.3	Are suitable plant shutdowns/inhibits in place to prevent the entry of inadequately treated water entering the distribution network?	No
<b>Comment</b>		
1. There is no automatic shutdown in place at the treatment plant to prevent inadequately treated water entering the supply network should the UV unit fail at the plant.		
2. In the event that the UV unit were to fail or operate outside it's validated range, the UV unit will shut down, however the WTP would continue to operate supplying untreated water to the network.		
3. Meath County Council confirmed that in the event of a failure, the plant would continue to operate until the next plant inspection was completed by operational staff.		

	Answer	
1.4	Are plant performance trends accessible by operational staff at the water treatment plant?	No
<b>Comment</b>		

1. No trends are available at the treatment plant or remotely to inform plant operations as there was no mechanism to record, display or transmit trended data.



## 2. Site Specific Issues

	Answer	
2.1	Is adequate disinfection in place to safeguard drinking water quality?	No
<b>Comment</b>		
<p>1. Uisce Éireann could not confirm if the Pro 20 Trojan UV reactor is validated to provide broad spectrum inactivation of bacteria, viruses and protozoan pathogens. The UV unit service records and product manual submitted to the EPA prior to the audit were corrupted and could not be reviewed.</p> <p>2. There is no standby UV disinfection unit in the event of failure of the duty unit.</p> <p>3. There is no secondary disinfection by chlorination to prevent microbiological contamination in the network.</p>		

	Answer	
2.2	Is the abstraction source adequately protected against contamination?	No
<b>Comment</b>		
<p>1. The abstraction source could not be inspected at the audit as it was located on private property.</p>		

	Answer	
2.3	Is operational water monitoring ongoing at the treatment plant?	No
<b>Comment</b>		
<p>1. No operational monitoring is ongoing at the treatment plant under the Uisce Éireann Monitoring Programme.</p>		

## Recommendations

<b>Subject</b>	Carrickleck PWS Audit Recommendation	<b>Due Date</b>	08/11/2024
<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 recommendations without delay.</b></p> <ol style="list-style-type: none"> <li>1. Alarms and Inhibits: (i) install warning alarms at the WTP to alert operational staff in the event of a failure of critical treatment processes and (ii) install automatic shutdown to prevent inadequately treated water entering the supply network.</li> <li>2. Disinfection: (i) confirm if the 20 Pro Trojan UV unit is validated to provide broad spectrum inactivation of bacteria, viruses and protozoan pathogens and if the unit is operating within its validated range, (ii) install a standby UV disinfection unit with automatic changeover or plant shutdown in the event of failure of the UV units, and (ii) install duty/standby chlorine dosing system as secondary disinfection to ensure adequate disinfection in the supply network</li> <li>3. Turbidity: (i) Install a continuous turbidity monitor on the final treated water at the treatment plant and ensure that appropriate warning alarms/plant shutdowns are in place in to protect the 1 NTU disinfection limit, and (ii) carry out manual daily turbidity monitoring until a continuous turbidity monitor is operational.</li> <li>4. Trended data: (i) provide a method of recording and displaying data at the treatment plant and, (ii) provide a means of transmitting trended data to the county SCADA so that trends are available to operational and supervisory staff to inform treatment plant operations.</li> <li>5. Investigate and report on whether the borehole is lined and sealed in accordance with <i>EPA Advice Note No. 14: Wellhead Protection and Borehole Construction</i>.</li> <li>6. Commence operational monitoring under the Uisce Éireann Operational Monitoring Programme to provide early warning that source water quality is deteriorating, a treatment process is failing or there is a problem in the distribution network.</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 the above due date 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>		