

# 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>	Ballyclough & Mount North
<b>Organisation</b>	Uisce Éireann
<b>Scheme Code</b>	0500PUB1316
<b>County</b>	Cork
<b>Site Visit Reference No.</b>	SV27946

Report Detail	
<b>Issue Date</b>	18/07/2023
<b>Prepared By</b>	Criona Doyle

Site Visit Detail			
<b>Date Of Inspection</b>	28/06/2023	<b>Announced</b>	Yes
<b>Time In</b>	10:30	<b>Time Out</b>	11:45
<b>EPA Inspector(s)</b>	Criona Doyle Paul Buckley		
<b>Additional Visitors</b>	David O'Malley		
<b>Company Personnel</b>	Uisce Éireann: Claire Hurley; Cormac Bergin; Aine Butler.  Cork County Council (working in partnership with Uisce Éireann): Jason O'Donoghue; Pauline McAree; Kevin McAuliffe.		

## > Summary of Key Findings

1. A copy of the UV validation certificate was not available at the audit to confirm the validation criteria for the UV units or verify that the UV units were being operated within the validation criteria.
2. There is no automatic switchover of the UV units in the event of failure of the duty UV unit to operate within its validated range.

## > Introduction

The Ballyclough and Mount North Public Water Supply (PWS) serves a population of 1,977 with an average daily output of 1,135m<sup>3</sup>/d (EDEN figures). The supply is served by 2 no. separate water treatment plants. This audit relates to the Ballyclough Water Treatment Plant (WTP) which provides on average 430m<sup>3</sup>/d of treated water to the Ballyclough and Mount North Public Water Supply.

Raw water is obtained from a spring. Treatment includes UV disinfection and chlorination. There is no storage of treated water at Ballyclough WTP.

The audit was undertaken to assess Uisce Éireann's performance in producing clean and wholesome water.

## > Supply Zones Areas Inspected

The audit consisted of an inspection of the spring, UV disinfection and chlorination treatment stages.



## 1. Source Protection

	Answer
1.1	Is the abstraction source(s) adequately protected against contamination?
	No
<b>Comment</b>	
<p>The spring source is located within a locked fenced compound. The abstraction point is covered by a locked secure chamber. There are no continuous raw water monitors for monitoring of the raw water quality of the spring source. Cork County Council indicated the raw water sampling and monitoring programme for the Ballyclough WTP is due to recommence in 2024.</p> <p>Uisce Éireann and Cork County Council could not confirm when local landowners were written to in relation to their obligations under the <i>European Union (Good Agricultural Practice for Protection of Waters) Regulations 2022</i> as amended.</p>	



## 2. Disinfection

	Answer	
2.1	Are duty and standby chlorine pumps/ UV units in operation?	No
<b>Comment</b>		
<p>There are duty and standby UV units for primary disinfection. There is no automatic switchover between the duty and standby UV units. The units are manually changed over on a weekly frequency.</p> <p>There are duty and standby chlorine dosing pumps with automatic switchover.</p>		

	Answer	
2.2	Is the UV system suitably validated?	No
<b>Comment</b>		
<p>Duty and standby UV units (Wedeco Spektron 25) are provided. The plates attached to the UV units stated the UV units are validated under ONORM / DVGW. A copy of the UV validation certificate was not available on the day of the audit.</p>		

	Answer	
2.3	Is the UV disinfection system operating within its validated range?	No
<b>Comment</b>		
<p>The plates attached to the UV unit indicated the UV units are validated to operate at a maximum flow rate of 32.46m<sup>3</sup>/hr, minimum UV dose of 400J/m<sup>2</sup> and a minimum UVT of 95%. A copy of the UV validation certificate was not available on the day of the audit to verify the validation criteria for the UV units.</p> <p>It is not possible to view trends on the HMI on site but trends can be viewed on the County wide SCADA and on staff mobile phones.</p>		

	Answer	
2.4	Does the trend in chlorine residual at the treatment plant indicate adequate and stable levels of disinfection?	Yes
<b>Comment</b>		
<p>Chlorination provides secondary disinfection. The residual chlorine trend for the period 21/05/23 to 21/06/23 was submitted as part of the pre audit information. The spike in the trend data on 26/05/23 related to servicing of the chlorine analyser. The rest of the trend indicated stable residual chlorine levels. There was a data gap on the trend from the Countywide SCADA (01/06/23) and the issue is being investigated by Cully Automation.</p>		



### 3. Management and Control

		Answer
3.1	Has the protozoal compliance log treatment requirement been identified for the water treatment plant?	No
<b>Comment</b>		
Uisce Éireann confirmed that the sanitary survey has been completed for the Ballyclough WTP and that confirmation of the protozoal log treatment requirement would be available in approximately 1 month.		

		Answer
3.2	Are suitable plant shutdowns/inhibits in place to prevent the entry of inadequately treated water entering the distribution network?	No
<b>Comment</b>		
<p>Treated water from the Ballyclough WTP is discharged directly to the network as there is no reservoir. The following plant shutdowns / inhibits are in place to prevent inadequately treated water from entering the network.</p> <ul style="list-style-type: none"> <li>• Low chlorine warning alarm 0.40mg/l (3 minutes time delay) and shutdown 0.30mg/l (10 minutes time delay);</li> <li>• High chlorine warning alarm 2.0mg/l (3 minutes time delay);</li> <li>• UVI warning alarm 108.7 W/m<sup>2</sup> (3 minutes time delay) and shutdown 103.5 W/m<sup>2</sup> (10 minutes time delay).</li> </ul> <p>The 10 minute time delay in place on the day of the audit does not meet the 5 minute time delay recommended in the <i>EPA Water Treatment Manual: Disinfection</i>. There is no shutdown linked to the high chlorine alarm setpoint.</p> <p>The pre audit information indicated a UVI alarm level of 108.7W/m<sup>2</sup> and shutdown at 103.4 W/m<sup>2</sup>. It was not clear at the audit how the UVI settings relate to the minimum UV dose of 400 J/m<sup>2</sup>.</p> <p>There is no online turbidity monitor with alarms and shutdowns.</p>		

## Recommendations

Subject	Ballyclough WTP - Audit	Due Date	18/08/2023
<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 recommendations without delay.</b></p> <ol style="list-style-type: none"> <li>1. Confirm the protozoal log treatment requirement for the Ballyclough Water Treatment Plant.</li> <li>2. (i) Submit a copy of the UV validation cert; (ii) Install automatic switchover between the duty and standby UV units in the event of the failure of the duty UV unit to operate within its validated range and (iii) submit 1 month of UV trend data to verify that the UV unit is operating within its validated operating range.</li> <li>3. Ensure continuous online monitors with alarms and inhibits are installed to monitor UVT, turbidity and pH (final).</li> <li>4. Liaise with Cork County Council to ensure that local landowners have been written to in relation to their obligations under the <i>European Union (Good Agricultural Practice for Protection of Waters) Regulations 2022</i> as amended.</li> <li>5. Provide details of the planned works to address the issue with data gaps on the Countywide SCADA and the timeframe for completion of the remedial works.</li> <li>6. (i) Review the time delay on the chlorine and UV shutdowns; (ii) install a shutdown linked to the high chlorine alarm setpoint and (iii) confirm the UV alarm setpoints and shutdown levels meet the validation criteria of the UV units.</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 18/08/2023 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>		