

# 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	Dunkerrin PWS
Organisation	Uisce Éireann
Scheme Code	2500PUB1007
County	Offaly
Site Visit Reference No.	SV29574

Report Detail	
Issue Date	14/11/2024
Prepared By	Lisa Noone

Site Visit Detail			
Date Of Inspection	24/10/2024	Announced	Yes
Time In	11:00	Time Out	14:00
EPA Inspector(s)	Lisa Noone		
Additional Visitors			
Company Personnel	Uisce Éireann: Ed Haythornthwaite, John Daly, Rodger Larkin, Catherine Casey, Shadreck Mavengano Offaly County Council (working in partnership with Uisce Éireann): Joe Coleman, Pat Devereux		

## > Summary of Key Findings

1. The audit found that all three water treatment plants operating as part of the Dunkerrin Public Water Supply (WTP) were operating and performing well in providing clean and wholesome water to the public supply.
2. There is no standby UV unit in place in Jones' Well WTP in the event of failure of the plant's duty UV reactor.
3. Alarms and inhibits in place for chlorine residual, turbidity and UV were not appropriate to ensure a timely and effective response by operational staff and to ensure adequate disinfection prior to distribution to the network.

## > Introduction

The Dunkerrin Public Water Supply (PWS) produces circa. 850 m<sup>3</sup>/day of water serving approximately 1,250 people in the village of Dunkerrin and surrounding areas. The supply is served by 2 spring fed wells at Dunkerrin Well (200m<sup>3</sup>/day) and Jones' Well (475m<sup>3</sup>/day), and one spring collection chamber at Lisduff Spring (175m<sup>3</sup>/day). The distribution network is fully connected and therefore can be served by a varying combination of all three sources. Currently based on demand, the water from each water treatment plant (WTP) serves specific parts of the network. Treatment at all three WTPs consists of UV and chlorination, and there is an on-site reservoir located at Lisduff Spring.

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 treatment plant and the procedures in place to ensure appropriate oversight of treatment processes.

## > Supply Zones Areas Inspected

Treatment processes at Dunkerrin Well WTP, Jones' Well WTP and Lisduff Spring WTP were inspected as part of the audit.



## 1. Disinfection

1.1

Are duty and standby chlorine pumps/ UV units in operation?

**Answer**

No

**Comment**

1. UV is used as primary disinfection at Jones' Well WTP, however there is no standby UV disinfection unit in the event of failure of the duty UV unit.

1.2

Is the UV system suitably validated?

**Answer**

No

**Comment**

1. UV validation certificates were not provided for Dunkerrin Well WTP and Jones' Well WTP



## 2. Alarms, Inhibits & Oversight Audits 2024

2.1

Were online monitors within their calibration dates?

Answer

No

### Comment

1. The flow meter in Jones' Well WTP was not within its calibration date.
2. Operators at Lisduff Spring WTP could not access calibration details for online monitors due to a new QR code calibration sticker system. Therefore Uisce Éireann could not demonstrate at the audit if online monitors at Lisduff Spring WTP were within their calibration date.

2.2

Are suitable alarm settings in place to alert operators to deteriorating water quality or the failure of a critical treatment process?

Answer

No

### Comment

1. The following alarm/inhibit setpoints are in place at Lisduff Spring WTP for chlorine residual and turbidity;
  - Chlorine residual low low alarm (shutdown) - 0.3 mg/l with a time delay of 20 minutes
  - Turbidity high high alarm (shutdown) - 1NTU with a time delay of 6 minutes
2. The time delays in place chlorine residual and turbidity are considered too long to allow a timely and effective response by operational staff and to ensure adequate disinfection prior to distribution to the network.
3. The following alarm/inhibit setpoints are in place at Jones' Well WTP for UV and turbidity;
  - UV dose rate low low alarm (shutdown) - 40mJ/cm2 with a time delay of 5 minutes
  - Turbidity high high alarm (shutdown) - 0.5NTU with a time delay of 15 minutes
4. The time delays in place for UV and turbidity at Jones' Well WTP are considered too long to allow a timely and effective response by operational staff and to ensure adequate disinfection prior to distribution to the network.
5. The alarm setpoints in place for Dunkerrin Well WTP were adequate.

2.3

Are dial out arrangements suitable to allow a timely response?

Answer

No

### Comment

1. Critical alarms are dialled-out on a group-basis to operational personnel for all WTPs. Alarms are responded to on a hierarchical basis depending on who is on call however there is no way of verifying that alarms have been responded to.

2.4

Has UÉ carried out an alarm and inhibit review at the water treatment plant?

Answer

No

**Comment**

1. Alarm and inhibit reviews have been carried out for Dunkerrin Well WTP and Jones' Well WTP.
2. An alarm and inhibit review has not yet been carried out for Lisduff Spring WTP and is planned once upgrade works are complete.

**2.5**

Is there a documented alarm response procedure?

**Answer**

No

**2.6**

Are there appropriate procedures covering verification of alarms and inhibits status following maintenance or other work on site?

**Answer**

No

## Recommendations

Subject	Dunkerrin PWS Audit Recommendations	Due Date	14/12/2024
Action Text	<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. Ensure that there are duty and standby UV disinfection units with automatic switchover in place at Jones' Well WTP in the event of failure of one of the UV disinfection units</li> <li>2. Review alarm set points and time delays in place at (i) Lisduff Spring WTP for chlorine residual and turbidity, and (ii) Jones' Well WTP for UV and turbidity .</li> <li>3. Ensure all online monitors are calibrated in accordance with the manufacturer's instructions, and that operators have access to calibration details for all monitors.</li> <li>4. Carry out an Alarm and Inhibit Review for Lisduff Spring WTP post upgrade works and implement the findings to protect treatment processes and treated water quality.</li> <li>5. Develop a procedure and deliver appropriate training (i) covering the verification of alarms/shutdowns status following maintenance or other works completed at the treatment plant, and (ii) for responding to and escalating all alarms generated at the water treatment plant. Both procedures should clearly document the corrective actions and set out delegation of responsibilities.</li> <li>6. Put in place an appropriate cascade system for responding to alarms generated at the plant which allows for verification that an alarm has been responded to.</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 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>		