

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 | Abbeyleix 1 PWS |
| Organisation | Uisce Éireann |
| Scheme Code | 1600PUB1056 |
| County | Laois |
| Site Visit Reference No. | SV32002 |

| Report Detail | |
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| Issue Date | 21/07/2025 |
| Prepared By | Derval Devaney |

| Site Visit Detail | | | |
|----------------------------|---|------------------|-------|
| Date Of Inspection | 12/06/2025 | Announced | No |
| Time In | 11:00 | Time Out | 13:05 |
| EPA Inspector(s) | Derval Devaney | | |
| Additional Visitors | | | |
| Company Personnel | Uisce Éireann (UÉ): Linda Doran. Laois County Council (working in partnership with UÉ): Larry Gittens, Francis Hegarty, Tom O'Carroll. | | |

> Summary of Key Findings

1. The UV units were not serviced in accordance with the timelines specified on the service stickers.
2. UV alarm and plant inhibit settings are not configured to match validated operating conditions, increasing the risk of inadequately disinfected water entering the network.
3. The incident and emergency response procedure requires updating to incorporate controls related to the UV treatment infrastructure.

> Introduction

The Abbeyleix 1 Public Water Supply (PWS) serves on average 676 m³/d of treated water to approximately 1,896 people (EDEN figures) in Co Laois. The raw water is abstracted from two spring sources (Aughfeerish Spring and Macs Well Spring). Macs Well spring source is piped to the water treatment plant (WTP) and blended with the Aughfeerish source located next to the WTP. The blended sources are covered and secured in a large housing unit.

Treatment consists of disinfection by UV treatment (primary disinfection) and sodium hypochlorite (secondary disinfection) before being pumped to a reservoir approximately 1 km from the plant.

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 WTP and the procedures in place to ensure appropriate oversight of treatment process.

> Supply Zones Areas Inspected

The audit assessed alarm and automatic shutdown set-points for the treatment process and process verification data and trends from continuous online monitors. Procedures relating to the management and oversight of the water treatment process were also inspected, in addition to the blended source at the plant and disinfection process. The reservoir off site was not visited.



1. Alarms, Inhibits & Oversight Audits 2025

1.1

Is there a documented site specific incident response and incident escalation process?

Answer

Yes

Comment

1. While a 'Water Incident Communication Response Guidance Form' is displayed at the WTP, it lacks defined site-specific trigger levels for incidents related to UV treatment performance.

1.2

Were online monitors within their calibration dates?

Answer

No

Comment

1. Ultraviolet (UV) treatment provides primary disinfection at the plant via two Wedeco LBX 90e UV reactors, which operate on a duty-standby arrangement with automatic switchover.
2. The service stickers on UV Units 1 and 2 indicated that a full service and new bulbs were provided on 19/07/2024. The sticker also noted that the next inspection was due in January 2025, and the next service was scheduled at 14,000 operating hours.
3. The UV Unit 2 display showed it had already accumulated 14,484 operating hours, exceeding the stated service threshold. In addition, an inspection was not carried out on UV units 1 and 2 in January 2025.
4. This discrepancy suggests that the units may be operating beyond their recommended service interval, potentially impacting disinfection performance and regulatory compliance.
5. However, there was a lack of clarity regarding the manufacturer's recommended servicing and maintenance procedures for the UV units and whether the servicing frequency on the service stickers aligned with the manufacturers guidelines.

1.3

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. According to UÉ's pre-audit documentation, the UV units are validated to operate at a flow rate of 40 m³/hour, delivering a UV dose of 40 mJ/cm² at 70% UV Transmittance (UVT). The documentation further states that at a UVT of 95% or higher, the units can operate at flow rates of up to 56 m³/hour while remaining within the validated performance range of the UV reactor.
2. However, the plant is currently configured to allow the UV units to operate at flow rates of up to 56 m³/hour with a high flow plant inhibit setting at 57 m³/hr. Additionally, the UVT low alarm is set at 75%, and the plant inhibit is set at 70%, which do not align with the validated condition of 95% UVT required for higher flow rates.
3. This misalignment poses a risk to water quality compliance should the UVT value drop below 95% while flows are greater than 40 m³/hr.

1.4

Are suitable plant shutdowns/inhibits in place to prevent inadequately treated water entering the distribution network?

Answer

No

Comment

1. The current flow and UVT plant inhibit settings do not guarantee that the UV unit will consistently operate within its validated range. See Q. 1.3 above for further information.

1.5

Are plant performance trends accessible by operational staff at the water treatment plant?

Answer

Yes

Comment

1. Although staff can access flow trends remotely via SCADA, a malfunction has prevented the flow trend from displaying on the HMI system at the WTP. The operator confirmed that this issue has been reported for resolution.

1.6

Is there a documented procedure for responding to specific alarms?

Answer

Yes

Comment

1. Although an Emergency Response Procedure is displayed at the WTP to guide responses to water quality alarms, it does not specify actions for responding to critical UV alarms.

1.7

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

Answer

No

Comment

1. While UÉ has a sign-in and sign-out policy for contractors attending the WTP, there is no standard operating procedure (SOP) in place to verify alarms and plant inhibits following on-site work.

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|--------------------|---|-----------------|------------|
| Subject | Abbeyleix 1 PWS 2025 Audit Recommendations | Due Date | 21/08/2025 |
| 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. UV treatment System <ol style="list-style-type: none"> i. Maintain and service the UV units as per the manufacturer's guidelines. Ensure calibration and service stickers accurately reflect those guidelines. Immediate servicing of the UV unit may be required to maintain compliance with disinfection standards. ii. Update the UV alarm and plant inhibits settings, to match the validated operating conditions. 2. Rectify the technical issue in the HMI system that is inhibiting the presentation of flow trend data at the plant. 3. Procedures <ol style="list-style-type: none"> i. Establish a standard operating procedure (SOP) for verifying alarms and inhibits following maintenance or any other on-site work; ii. Amend the 'Water Incident Communication Response Guidance Form' displayed at the WTP to include protocols for reporting and managing UV treatment-related incidents; iii. Update the Emergency Response Procedure to include specific actions for addressing UV-related water quality alarms. <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 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> | | |