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	Portlaoise PWS
Organisation	Uisce Éireann
Scheme Code	1600PUB1004
County	Laois
Site Visit Reference No.	SV33432

Report Detail

Issue Date	16/12/2025
Prepared By	Derval Devaney

Site Visit Detail

Date Of Inspection	20/11/2025	**Announced**	No
Time In	10:30	**Time Out**	14:00
EPA Inspector(s) **Additional Visitors**	Derval Devaney		
Company Personnel	Uisce Éireann (UÉ): Linda Doran. Laois County Council (working in partnership with UÉ): Brendan Garry, Micheal Brady, Tom O'Carroll.		

Summary of Key Findings

1. Manganese failures in the final water were not notified to the EPA. The rapid gravity filter media, for removal of manganese and iron, was not replenished since installed in 1998.
2. Plant alarm settings on critical infrastructure were wiped from the Countywide SCADA. There are no automatic plant inhibits linked to critical infrastructure, such as chlorine and turbidity monitors.
3. There is no chlorine monitor post contact time on one outlet of the treated water reservoir, to verify disinfection is adequate.

Introduction

Portlaoise Public Water Supply (PWS) produces on average 8,500 m3/day serving a population of over 26,000. The raw water is sourced from nine boreholes (Derrygarron 1 & 2; Straboe 2; Eyne 1 & 3; Ballydavis 3 & 4; Coolbanagher 9 & 10) to serve the Kilminchy Water Treatment Plant.

Treatment provided includes a cascade aerator system and rapid gravity filtration for the oxidation and removal of iron and manganese and disinfection using chlorine gas. Approximately 70% of the incoming flow is treated for manganese and iron removal. Treated water is stored at an on-site reservoir which has approximately 21 hours of storage.

The chlorine gas disinfection system is undergoing an upgrade and will be replaced by sodium hypochlorite. Works are currently underway and expected to be complete mid-January 2026. Works also include an upgrade to the alarm system and installation of automatic plant inhibits.

The audit was undertaken to assess Uisce Éireann's performance in producing clean and wholesome water with a focus on the manganese and disinfection treatment processes, 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

The treatment processes and the on-site reservoir was inspected in addition to critical water quality continuous monitoring equipment, trends and alarm settings. The boreholes and reservoirs off site were not inspected.

1. Filtration

		Answer
1.1	Does monitoring indicate that the filters are operating effectively?	No

Comment

1. Some of the raw water sources contain elevated levels of manganese. This is also evident in the EPA's quarterly monitoring of the Derrygannon well since 2007.
2. Raw water entering the plant is dosed with chlorine gas for disinfection, but also to support oxidation of iron and manganese and its subsequent precipitation.
3. Following dosing, the treatment stream is split; approximately 70% of incoming flow is treated through three rapid gravity filters (RGFs) for iron and manganese removal.
4. Prior to the filters, water passes through a cascade aerator system which supports oxidation of iron and manganese.
5. The RGFs contain a silica sand and manganese dioxide media. The media was not replaced since the filters were installed in 1998.
6. Final water results reviewed during the audit indicate manganese failures are occuring post filtration.

2. Disinfection

		Answer
2.1	Is there a procedure in place for caretakers and contractors to check and sign-off that all alarms have been correctly re-set on completion of any maintenance work?	No

Comment

1. There is no procedure in place for operators or contractors to check and sign-off that all alarms have been correctly re-set on completion of maintenance work. See Q 3.2 relating to this matter.

		Answer
2.2	Is the chlorine dosed appropriately?	Yes

Comment

1. The filtered water stream receives a second top up dose of chlorine for disinfection purposes prior to entering the on-site reservoir. A chlorine monitor (the "Filtered Water Chlorine" monitor) is located post dosing and prior to entry into the reservoir, and is alarmed.
2. The flow that by passes the filters ("Filter by pass stream") receives no further treatment. This stream is transferred directly to the on-site reservoir. Prior to entering the reservoir it is monitored for chlorine by the "Filter bypass chlorine" monitor which is alarmed.

		Answer
2.3	Is the residual chlorine monitored at a suitable sample location after contact time has been completed?	No

Comment

1. Contact time is achieved in the on-site reservoir. The reservoir is split into two interconnecting cells. The filter bypass stream enters one cell and the filtered water stream enters another cell.
2. There are two outlet pipes to the network; one from each reservoir cell. However only one outflow pipe has dual validation chlorine monitors installed to verify adequate disinfection has been achieved post contact time.

3. Management and Control

		Answer
3.1	Are suitable plant shutdowns/inhibits in place to prevent the entry of inadequately treated water entering the distribution network?	No

Comment

1. The plant does not have any shutdowns in place, these will be installed as part of the disinfection upgrade due for completion mid-January 2026.

		Answer
3.2	Are suitable alarm settings in place to alert operators to deteriorating water quality and/or the failure of a critical treatment process?	No

Comment

Countywide SCADA

1. Alarm settings for the Kilminchy plant were found to be wiped from the system when viewed on the Countywide SCADA during the audit. The exact duration of the alarm outage is not known, but is estimated to have lasted a maximum of up to 2 weeks prior to the audit.
2. Following the audit, UÉ reported that one of it's contractors experienced a server outage, which is suspected to have caused the issue with the alarm settings. This matter has been escalated with the contractor.
3. UÉ has confirmed that alarms are now reinstated and have been checked and verified.

Local Plant Alarm setpoints

1. The local plant alarm set points do not coincide with the settings on the Countywide SCADA system (the latter were submitted in advance of the audit).
2. The time delay settings for alarms were not displayed for the chlorine monitors.
3. The low alarm on the "Filter by pass chlorine monitor", located post chlorine dose and pre on-site reservoir, does not protect the disinfection process, as it is set too low at 0.05 mg/l.

4. Drinking Water Quality

		Answer
4.1	Have relevant failures to comply with the requirements of the European Union (Drinking Water) Regulations 2023 been notified to the EPA?	No

Comment

1. The final water is monitored daily (Monday - Friday) for manganese at the water treatment plant.
2. A review of the October and November 2025 final water results showed manganese was above the parameteric value of 50 ug/l on numerous occassions. Manganese was also above the World Health Organisation (WHO) provisional health-based guideline value of 80 ug/l on 13/10/2025.
3. The EPA was not notified of these failures and the HSE did not appear to be consulted regarding the failures to determine risk to human health.

Recommendations

Subject	Portlaoise PWS - 2025 Audit Recommendations	Due Date	16/01/2026
Action Text	**Uisce Éireann is responsible for ensuring a clean and wholesome supply of drinking water and should implement the following recommendations without delay.** 1. **Alarms and Plant Inhibits** i. Establish a procedure for verifying alarms and plant inhibits following maintenance or other on-site work, and provide training to all relevant staff. ii. Ensure alignment between plant SCADA and countywide SCADA alarm settings. iii. Review and submit the time delay settings for turbidity and chlorine alarms at the plant. Adjust the low chlorine alarm setting on the “Filter Bypass” chlorine monitor to ensure it protects the target concentration required post-contact time for adequate disinfection. iv. Install appropriate plant shutdown protocols for critical infrastructure, including chlorine and turbidity continuous monitors. 2. **Install a chlorine monitor post Ct** i. Install a continuous chlorine monitor at the second outlet of the reservoir, with appropriate alarms and plant inhibits post-contact time, to validate adequate disinfection and protect water quality targets. 3. **Manganese** i. Consult with the HSE regarding manganese failures and notify the EPA via CRM without delay. ii. Implement without delay, operational (Schedule 2) monitoring for raw, filtered, and final water to include manganese and iron. iii. Undertake remedial action to ensure manganese compliance. Include an assessment of the need to replace filter media to ensure optimal performance and water quality compliance. 4. **Plant Upgrade** i. Confirm completion of the plant upgrade, including disinfection and alarm/inhibit enhancements. ii. Install appropriate plant shutdown protocols for critical infrastructure, including chlorine and turbidity continuous monitors. **Actions required by Uisce Éireann** 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. 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. The EPA advises that the findings and recommendations from this audit report should, where relevant, be addressed at other public water supplies.		