

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 | Fingal Zone 1 |
| Organisation | Uisce Éireann |
| Scheme Code | 0900PUB1001 |
| County | Dublin |
| Site Visit Reference No. | SV29653 |

| Report Detail | |
|--------------------|----------------|
| Issue Date | 13/11/2024 |
| Prepared By | Michelle Roche |

| Site Visit Detail | | | |
|----------------------------|--|------------------|-------|
| Date Of Inspection | 16/10/2024 | Announced | Yes |
| Time In | 10:35 | Time Out | 12:55 |
| EPA Inspector(s) | Michelle Roche Noel Cosgrove | | |
| Additional Visitors | | | |
| Company Personnel | Uisce Éireann: Edward Haythornthwaite, Linda Doran, Tselo Tlou, Conor Williams, Dominik Bohr, Robert Roche and Derek Noud. | | |

> Summary of Key Findings

1. Infrastructural upgrades to the coagulation, flocculation and clarification (CFC) process at Leixlip Water Treatment Plant were complete in Q3, 2024. The upgrades were the subject of an EPA Regulation 16(2) issued on 16/04/2021. Uisce Éireann did not comply with the timeframe set out in the Direction of 30/06/2023, however all upgrades have now been installed.
2. Raw water pH adjustment dosing was installed prior to coagulation under the upgrade works. Optimisation of this dosing process was ongoing at the time of the audit.
3. Filter media depths at the Old Plant could not be confirmed during the audit. Filter media depths are checked every 3 months but records were not available to view at the audit.

> Introduction

Leixlip Water Treatment Plant is the second largest water treatment plant in the country, which supplies water to approximately 650,000 people in the Greater Dublin Area. Raw water is abstracted from the River Liffey impoundment adjacent to the plant and is distributed to three separate water treatment buildings; Mahon and McPhillips and Paterson Candy International, which constitute the Old Plant and Aecom, known as the New Plant.

Treatment is the same across the all three plants and consists of screening, pH adjustment, coagulation, flocculation, clarification, rapid gravity filtration, chlorination, final water pH correction and fluoridation. Ultraviolet disinfection also takes place at the old plant prior to chlorination. The audit was conducted as a full audit of Leixlip Water Treatment Plant.

> Supply Zones Areas Inspected

The audit inspected all aspects of the treatment process at the Old Plant (Mahon McPhillips and Paterson Candy International). Alarm and inhibit set-points and continuous online water quality trends for filter turbidity, UV and final water chlorine residuals were examined for both the old and new treatment plants.



1. Coagulation Flocculation and Clarification (CFC) Stage

| | Answer |
|-----|---|
| 1.1 | Were the CFC processes visually observed to be operating appropriately during the audit? Comment <p>1. Infrastructural upgrades to the CFC process across both the old and new WTPs at Leixlip were completed in Q3, 2024. The installation of pH adjustment prior to clarification and pH correction of the final water were included in the scope of the upgrades. The upgrades were the subject of an EPA Regulation 16(2) issued on 16/04/2021.</p> <p>2. Uisce Éireann did not comply with the timeframe set out in the Direction of 30/06/2023, however all upgrades have now been installed.</p> <p>3. On a walkthrough of the Old Plant a large amount of pinfloc was observed above the lamellae plates in the clarifiers. Uisce Éireann stated that on the afternoon before the audit (15/10/2024) plant operators observed the sludge blanket rising and filter turbidity increasing at the Old Plant.</p> <p>4. Operators switched off the pH adjustment dosing before the clarifiers at 3pm on 15/10/2024 and the plant began to stabilise again. Individual filter turbidities were maintained below 0.3 NTU at all times and final water filtered turbidity did not go above 0.48 NTU.</p> <p>5. Uisce Éireann stated they were investigating the cause of the sludge blanket rising but that further process optimisation of the new pH adjustment dosing was likely to be required.</p> |



2. Filtration

| | Answer |
|--|---|
| 2.1 | Are the filters designed and managed in accordance with EPA guidance? No |
| Comment | |
| <p>1. Filter media depths in the rapid gravity filters at the Old Plant were not available to be viewed at the time of the audit. Uisce Éireann stated that filter media depths are checked and recorded every 3 months.</p> <p>2. Uisce Éireann was requested to submit a copy of the filter media depth record to the EPA following the audit, however no record has been submitted to date.</p> | |

Recommendations

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| Subject | Leixlip Water Treatment Plant Audit Recommendations | Due Date | 13/11/2024 |
| 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. Optimise pH adjustment is ensure the coagulation, flocculation, clarification (CFC) water treatment process is working adequately.2. Submit to the EPA filter media depths for all rapid gravity filters at the Old Plant.3. Ensure filter media depths are maintained in accordance with the EPA Water Treatment Manual: Filtration. <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 13/12/2024 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> | | |