

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	DCC ZONE 1 BALLYMORE
Organisation	Uisce Éireann
Scheme Code	0700PUB1001
County	Dublin
Site Visit Reference No.	SV29695

Report Detail	
Issue Date	08/10/2024
Prepared By	Michelle Roche

Site Visit Detail			
Date Of Inspection	10/09/2024	Announced	Yes
Time In	11:00	Time Out	14:55
EPA Inspector(s)	Michelle Roche Sean O'Leary		
Additional Visitors	Patrick Chan		
Company Personnel	Uisce Éireann: Edward Haythornthwaite, Joseph Moran, Agnes Wojdowska and Eoin Walsh		

> Summary of Key Findings

1. The sludge blanket in Sedimentation Tank C3 was observed to have risen above the top of the tube settlers and small pieces of floc were being carried over into the settlement tank channels.
2. Immediate action was taken by Uisce Éireann Asset Operations and plant operators were instructed to reduce the flow rate of water entering Sedimentation Tank C.
3. Uisce Éireann confirmed that sludge blankets in sedimentation tanks C2 and C3 have been known to rise on occasion and Uisce Éireann are investigating an appropriate sedimentation tank turbidity warning limit and associated SOP to provide greater operational control.

> Introduction

Ballymore Eustace Water Treatment Plant (WTP) is the largest water treatment plant in the country, which supplies water to approximately 877,000 people in Dublin City, South Dublin County, Dun Laoghaire Rathdown and Kildare.

The plant currently produces approximately 340 ML/d and has a design capacity of 400 ML/d. Treatment consists of coagulation with alum and poly, clarification in 12 sedimentation tanks, rapid gravity filtration in 32 filters, disinfection using on-site electrolytic chlorination, lime addition for pH correction, and fluoridation.

The audit was conducted as a full audit of the water treatment plant.

> Supply Zones Areas Inspected

The audit inspected all aspects of the treatment process at Ballymore Eustace Water Treatment Plant. Continuous turbidity trends from all filters were assessed prior to the site visit.



1. Coagulation Flocculation and Clarification (CFC) Stage

1.1

Were the CFC processes visually observed to be operating appropriately during the audit?

Answer

No

Comment

1. The sludge blanket in Sedimentation Tank C3 was observed to have risen above the top of the tube settlers and small pieces of floc were being carried over into the settlement tank channels.
2. Immediate action was taken by Uisce Éireann Asset Operations, and plant operators were instructed to reduce the flow rate of water entering Sedimentation Tank C.
3. Uisce Éireann outlined that Sedimentation Tank C has the highest hydraulic pressure as it is the first tank water enters after the coagulant and poly mixing chamber. This can result in the Sedimentation Tank C being overwhelmed if incoming flow is too high.
3. Uisce Éireann are investigating installing turbidity monitors on each individual sedimentation tank, setting an appropriate sedimentation tank turbidity warning limit and developing an associated Standard Operating Procedure (SOP) to provide greater operational control of the clarification process. At present there is a combined sedimentation tank turbidity monitor and warning limit in place. There is also a sedimentation tank shutdown SOP in place, but this would need to be updated.



2. Management and Control

2.1

Are instrument calibrations within date?

Answer

No

Comment

1. Instrument calibration stickers are no longer used throughout the water treatment plant. Uisce Éireann confirmed that Dublin City Council staff calibrate and maintain instruments as required and maintain calibration lists themselves.

2. These lists were not available to view at the audit and are not readily available to Uisce Éireann operational staff should an immediate need arise to confirm instrument calibration.

2.2

Have the recommendations from the previous EPA audit been satisfactorily addressed?

Answer

No

Comment

1. The following audit recommendation from the EPA previous in February 2023 has not been completed:

Ensure filter media depths are maintained in accordance with the EPA Water Treatment Manual: Filtration.

2. Filter media depths are not currently being measured at the WTP. A contractor has been appointed to install guard rails around each filter to allow plant operators safely measure filter media depths. There was no timeframe given for when these works would be complete.



3. Drinking Water Quality

3.1

Have relevant failures to comply with the requirements of the European Union (Drinking Water) Regulations 2023 been notified to the EPA?

Answer

Yes

Comment

1. An exceedance of the operational limit of 0.3 NTU on 9 individual filters which occurred on 20/07/2024 was notified to the EPA on the next working day 23/07/2024.
2. The EPA investigated the failures and determined that the SOP was followed and filters were backwashed and taken out of service as appropriate until filter turbidity returned below the operational limit of 0.3 NTU.
3. The HSE was not consulted until 23/07/2024 and proactive monitoring for *Cryptosporidium* prior to HSE consultation was not undertaken in immediate response to the elevated filter turbidity.
4. Final water turbidity was maintained below the regulatory limit of 1 NTU at all times.

Recommendations

Subject	Ballymore Eustace WTP Recommendations - 2024	Due Date	08/11/2024
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. Investigate and rectify the cause of sludge blanket rising in the sedimentation tanks. In carrying out this investigation have regard to the EPA Water Treatment Manual: Coagulation, Flocculation and Clarification and EPA Advice Note No. 15: Optimisation of Chemical Coagulant Dosing. 2. Ensure that calibration records for equipment and probes are maintained and readily available to Uisce Éireann operational staff. 3. Provide a timeframe for completing the recommendation made in the previous EPA audit report to ensure filter media depths are maintained in accordance with the EPA Water Treatment Manual: Filtration. 4. Ensure water quality verification monitoring is carried out in a timely manner following any exceedance of water treatment plant operational limits. 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 08/11/2024 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.		