

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	Ballynavortha Public Supply
Organisation	Uisce Éireann
Scheme Code	3400PUB1168
County	Wicklow
Site Visit Reference No.	SV32415

Report Detail	
Issue Date	23/04/2025
Prepared By	Derval Devaney

Site Visit Detail			
Date Of Inspection	04/04/2025	Announced	Yes
Time In	10:30	Time Out	12:40
EPA Inspector(s)	Derval Devaney Ruth Barrington		
Additional Visitors			
Company Personnel	Uisce Éireann (UÉ): Linda Doran, Christina Prado Casal, Robbie Confrey, Graham Watts.		

> Summary of Key Findings

1. It could not be confirmed if the groundwater source serving the Ballynavortha Water Treatment Plant is adequately protected from risk of contamination.
2. There is no automatic plant shutdown of the Ballynavortha Water Treatment Plant for pH and turbidity to prevent inadequately treated water entering supply.
3. The pH probe did not have a flow through cell to ensure it read accurately at all times.

> Introduction

The Ballynavortha Public Water Supply serves approximately 1 m³/day of treated water to 4 people (EDEN figures) in Co. Wicklow.

The Ballynavortha supply is sourced from a borehole located next to the Ballynavortha Water Treatment Plant (WTP). Treatment consists of a Juraperl pH corrector (containing calcium carbonate), a Pyrolox filter (for the removal of iron and manganese), a nitrate filter and disinfection using ultraviolet treatment (Trojan UV Max Pro 20).

This audit was undertaken to assess Uisce Éireann's performance in producing clean and wholesome water from the Ballynavortha WTP and in response to nitrate, iron, turbidity and pH parametric failures in the treated water occurring between March and November 2024.

> Supply Zones Areas Inspected

The Ballynavortha WTP including the pH, filtration and disinfection processes were inspected in addition to documentation and monitoring records relating to the management and oversight of the water treatment process. Alarm set-points for each step of the water treatment process and process verification data and trends from continuous online monitors were also assessed. The on-site borehole was not inspected as part of this audit.



1. Source Protection

1.1

Is the abstraction source(s) adequately protected against contamination?

Answer

No

Comment

1. A groundwater source supplies the Ballynavortha WTP. The number of houses served by the supply could not be confirmed during the audit.
2. It was not possible to inspect the well to determine if it is adequately protected, as it was located at ground level underneath artificial grass next to a domestic dwelling.
3. It was not known if there is a septic tank(s) located within the supply's zone of contribution.
4. Backwash from the pH corrector, iron and manganese filter, and nitrate filter is discharged by pipe to ground next to the water treatment plant. It is unknown if this discharge is having a negative impact on the raw water quality.



2. Filtration

2.1

Does monitoring indicate that the filters are operating effectively?

Answer

Yes

Comment

1. There is monthly operational raw and final water monitoring programme in place to verify the effectiveness of the water treatment systems in place.
2. Sampling and analysis is carried out by an accredited laboratory and results are reported to Uisce Éireann. Monitoring includes *E. coli*, nitrate, iron, turbidity, pH, UVT and manganese in the raw water and nitrate, iron, turbidity, pH, UVT, and arsenic in the final treated water.
3. The results were reviewed during the audit for January and February 2025 and showed compliance against the drinking water parametric values.
4. There was a tap located outdoors on the wall of the WTP which was not labelled. It was not clear if this was a final water tap.



3. Management and Control

3.1

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

Answer

No

Comment

1. There are no plant inhibits linked to the continuous final water turbidity and pH meters to prevent inadequately treated water entering supply.
2. The only plant inhibit currently in place relates to the UV dose; where there is a plant shutdown when the dose falls below 40 mJ/cm² for 3 minutes or more.

3.2

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

Answer

No

Comment

1. The lo lo pH alarm setting on the final treated water was 6.4, which is outside the statutory limit of between 6.5 and 9.5 pH units set out in the *European Union (Drinking Water) Regulations 2023, S.I. No. 99 of 2023*.

3.3

Are critical alarms dialled out to staff?

Answer

No

Comment

1. While the final water pH alarm dials out by text to staff, it does not dial out to the plant operator.
2. Uisce Éireann stated it is in the process of making the pH dial out alarm available to the operator.

3.4

Are instrument calibrations within date?

Answer

No

Comment

1. The calibration sticker on the outflow meter indicated it was out of calibration. The sticker indicated it was due a service calibration on 15/12/2024.
2. The final water turbidity meter displayed a calibration sticker indicating it was recently calibrated, but the old calibration sticker also remained on the meter.

3.5

Is continuous monitoring data accessible?

Answer

No

Comment

1. Trended monitoring data is available to staff on SCADA via mobile phones and tablets. However the operator has yet to get access to SCADA.

Subject	Ballynavortha PWS Audit Recommendations	Due Date	23/05/2025
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. Confirm the number of houses served by the Ballynavortha public water supply. 2. Source Protection: <ol style="list-style-type: none"> i. Ensure the borehole is adequately protected against contamination. Uisce Éireann should have regard to <i>EPA Advice Note No. 14: Borehole Construction and Wellhead Protection</i> when carrying out any upgrade works; ii. Liaise with Wicklow County Council to ensure inspection(s) are carried out on any nearby septic tank(s) within the water supply's zone of contribution to assess if they are operating optimally and do not present a risk to human health or the environment; iii. Investigate if discharge from the backwash pipe is impacting on raw water quality. 3. Alarms and Plant Inhibits: <ol style="list-style-type: none"> i. Ensure pH alarm settings are within the statutory limits set out in the <i>European Union (Drinking Water) Regulations 2023 S.I No. 99 of 2023</i>; ii. Install plant inhibits linked to the turbidity and pH final water online monitors to prevent inadequately treated water entering the supply network; iii. Ensure all critical alarms are dialled out to relevant staff. 4. <ol style="list-style-type: none"> i. Upgrade the pH probe to ensure it reads accurately at all times; ii. Calibrate the outlet flow meter in accordance with manufacturer's instructions; iii. Remove the out of date calibration sticker on the final water turbidity monitor. 5. Ensure the plant operator has access to SCADA to review monitoring trends. 6. Continue to ensure the pH corrector, filters and UV unit are serviced in accordance with manufacturer's recommendations to ensure effective treatment and prevent parametric failures in the treated water. 7. Ensure all sampling points are labelled to avoid incorrect sampling points being used when monitoring the raw and final water. <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>		