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	Arranmore Island
Organisation	Uisce Éireann
Scheme Code	0600PUB1061
County	Donegal
Site Visit Reference No.	SV31977

Report Detail

Issue Date	29/07/2025
Prepared By	Veronica Boland

Site Visit Detail

Date Of Inspection	10/06/2025	**Announced**	Yes
Time In	10:10	**Time Out**	12:50
EPA Inspector(s) **Additional Visitors**	Veronica Boland		
Company Personnel	Uisce Éireann: Geraldine Friel, Adrian Gillespie. Donegal County Council (working in partnership with Uisce Éireann): Dennis O'Donnell.		

Summary of Key Findings

1. Arranmore water treatment plant (WTP) was found to be very well operated and maintained.

Introduction

The Arranmore Island Public Water Supply (PWS) produces approximately 386 m3/day of treated water and serves a population of approximately 470 people (as per Uisce Éireann figures). The raw water source is Lough Shore. Treatment at the water treatment plant (WTP) consists of pre-treatment pH correction, coagulation, flocculation, clarification, manganese removal treatment, rapid gravity filtration, post treatment pH correction and chlorination. Treated water is gravity fed to the on-site reservoir (170m3 storage capacity). There are two other reservoirs on the network, Leabgarrow reservoir (135m3), and Gortgarra Reservoir (170m3).

The audit was undertaken to assess Uisce Éireann's performance in producing clean and wholesome water with a focus on protozoal barriers.

Supply Zones Areas Inspected

The site areas inspected during the audit:

- WTP treatment processes.

1. Protozoal Barriers Audits 2025

		Answer
1.1	Has UÉ identified the protozoal compliance log treatment requirement for the water treatment plant?	Yes

Comment

1. A Source and Sanitary survey was completed and a Log 3 requirement confirmed for the Arranmore WTP.

		Answer
1.2	Did UÉ confirm whether Cryptosporidium monitoring under the Rationale for Determining the Frequency of Cryptosporidium in Public Water Supplies is being carried out?	Yes

Comment

1. *Cryptosporidum* monitoring is carried out on a monthly basis all year around as per the Uisce Éireann *Rationale for Determining the Frequency of Cryptosporidium in Public Water Supplies.*

		Answer
1.3	Did treatment process trends demonstrate that data was being captured and recorded at all times?	Yes

Comment

1. Turbidity trend data reviewed on both HMIs at the WTP indicated continuous monitoring and recording was in place at the WTP at all times.
2. A review of the 'County SCADA' turbidity trends with the WTP HMI turbidity trends revealed that the referencing of turbidity trends on the County SCADA were incorrect. The 'County SCADA' turbidity trend referenced 'Raw Water Turbidity' actually related to the combined filtered turbidity at the WTP (which is alarmed to shutdown the WTP at 1 NTU after 3 minutes). The data on the County SCADA should mirror the data captured/recorded at the WTP to enable supervisors to review plant performance trends/alarm history and take action where required to support operational staff in their work.

		Answer
1.4	Are the filters designed and managed in accordance with EPA guidance?	No

Comment

1. The are two rapid gravity filters (RGF) at Arranmore WTP. The filter media (sand) was refurbished in 2020 and filter media depths were: RGF1=1230 mm, RGF2=1,118 mm both filter media depths are above the recommended 1000mm.
2. A turbidity monitor is in place on each individual filter with an alarm setpoint of 0.3 NTU (15 minutes delay) on each filter. When it reaches 0.3 NTU a dial out alert is sent to staff on a cascade system to investigate.
3. There is no automatic trigger for backwashing. Backwash is manual and based on time only. The *EPA Water Treatment Manual: Filtration* recommends that filter backwash is triggered based on filter turbidity, time and headloss.
4. There is no filter run to waste or slow start after backwashing in place at the WTP.

		Answer
1.5	Does continuous turbidity monitoring indicate that the filters are operating effectively?	Yes

Comment

1. The filter turbidity readings on the day of the audit were RGF1=0.02 NTU, RGF2=0.08 NTU.
2. A review of historical turbidity trend data indicated low turbidity for individual filters (between 0.02 NTU and 0.08 NTU), combined filter (average of 0.09 NTU) and final water turbidity (0.02 NTU).
3. Anomalies were identified in the combined filter water turbidity trends in that there were spikes above 1 NTU when the plant was not in operation (on 27 May 2025, combined turbidity spiked to 2.32 NTU for 3 minutes while the plant was not operating).
4. During the audit the WTP was not operating, however there was a sound of water gurgling in the Clear Water Tank. This agitation of water and the bend in the pipework post the CWT may contribute to false turbidity readings and requires further investigation.

		Answer
1.6	Are coagulant residual monitoring results compliant in final water?	Yes

Comment

1. The coagulant residual (aluminium) results in the final water were reviewed and were compliant.

		Answer
1.7	Are alarms and inhibits on each filter, on the combined filtered water and final water in accordance with the EPA Filtration Manual?	No

Comment

1. While there were turbidity warning alarms on each filter set at 0.3 NTU for 15 minutes, there was no inhibit on each filter as recommended in the E*PA Water Treatment Manual: Filtration*.
2. The combined filtered turbidity (located post clear water tank /pre-reservoir) has a plant inhibit alarm setpoint of 1 NTU for 3 minutes.

Recommendations

Subject	Arranmore PWS - Audit (Protozoal) 2025 - Recommendations	**Due Date**	29/08/2025
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. (i) Continue monitoring of the supply for Cryptosporidum in accordance with the Uisce Éireann *Rationale for Monitoring of Cryptosporidium in Public Water Supplies and (ii)* Install appropriate turbidity alarms/inhibits for the individual filters to ensure the 0.3 NTU Cryptosporidum barrier is not compromised and is in accordance with the *EPA Water Treatment Manual: Filtration*. 2. Examine the feasibility of installing (i) automatic backwashing linked to turbidity alarm setpoint and (ii) that the filters run to waste for an appropriate period of time after backwashing or install a slow start following backwashing in accordance with the *EPA Water Treatment Manual: Filtration*. 3. (i) Investigate the cause of the turbidity spikes in the the combined filtered water (post clear water tank/pre reservoir) during periods when the WTP is not operating and (ii) implement measures to address the issue(s) and to ensure that the turbidity readings are reflective of the actual water quality. 4. Update the County SCADA with the correct turbidity monitor/trend reference points in relation to Arranmore WTP. **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 29/08/2025 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.		