

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	Donoughmore
Organisation	Uisce Éireann
Scheme Code	0500PUB3204
County	Cork
Site Visit Reference No.	SV28352

Report Detail	
Issue Date	05/12/2023
Prepared By	Paul Buckley

Site Visit Detail			
Date Of Inspection	08/11/2023	Announced	Yes
Time In	13:45	Time Out	15:30
EPA Inspector(s)	Paul Buckley Criona Doyle		
Additional Visitors			
Company Personnel	Uisce Éireann: Sharon O'Dwyer, Claire Hurley, Niall O'Riordan. Cork County Council (working in partnership with Uisce Éireann): Eimear O'Riordan, Pdraig Griffin, Tony Sheehan, Pauline McAree.		

> Summary of Key Findings

1. A Boil Water Notice was placed on the Donoughmore Public Water Supply on 12/10/2023 in response to inadequate disinfection following contamination of the raw water source with ammonia. The audit confirmed that the incident had been appropriately escalated and responded to in order to protect consumers. However issues with the bypassing of alarms were identified by Uisce Éireann during the investigation. In response to the incident Uisce Éireann has implemented new procedures at the water treatment plant. The Boil Water Notice was still in place at the time of the audit.
2. Further upgrade works under the Uisce Éireann Disinfection Programme are planned at the Donoughmore Water Treatment Plant.
3. There is no turbidity monitor with alarms and inhibits in place at the water treatment plant to prevent inadequately treated water entering the network.

> Introduction

The Donoughmore Public Water Supply (PWS) supplies an average of 390 m³/day of water, serving a population of 867.

Raw water is obtained from 3 no. boreholes (BH1, BH2 and BH3) located in the area surrounding the water treatment plant (WTP). Treatment consists of chlorination and pH adjustment.

The audit was undertaken to assess Uisce Éireann's performance in producing clean and wholesome water following the imposition of a Boil Water Notice (BWN) on the supply on 12/10/2023 which was still in place on the day of the audit. The BWN was placed on the supply due to a chlorination disinfection issue caused by the presence of ammonia in the raw water.

> Supply Zones Areas Inspected

The 3 no. boreholes and the chlorination disinfection system at the Donoughmore water treatment plant were inspected.



1. Incident Management

	Answer
1.1 Was the incident suitably alerted to the plant operators, escalated and managed in order to maintain water quality and protect public health?	Yes
Comment	
<p>On 11/10/2023 the WTP shutdown at 19:10 hours due to low chlorine (< 0.5 mg/l) at the outlet of the reservoir. The curator on duty activated the chlorine bypass to restart the plant at 21:00 hours and this bypass remained activated overnight. The chlorine dosing continued overnight but the demand increased due to contamination of the raw water and chlorine levels dropped. As the chlorine bypass was on, alarms and shut down were not activated resulting in low free chlorine residual in the water leaving the reservoir outlet until 12:00 hours on 12/10/23. Samples taken on 12/10/2023 found ammonia in the raw water and Uisce Éireann identified this as the cause of the increase in chlorine demand.</p>	



2. Source Protection

	Answer
2.1 Is the abstraction source(s) adequately protected against contamination?	No
Comment	
<p>Some debris and silt was observed in the wellhead chambers at Boreholes no.s 1 and 2.</p> <p>Uisce Éireann and Cork County Council representatives also stated that redundant boreholes are located in the surrounding area. The redundant borehole adjacent to Borehole no. 1 was not accessible during the audit. The redundant borehole adjacent to Borehole no. 2 was viewed and was not adequately sealed.</p> <p>Uisce Éireann and Cork County Council representatives confirmed that landowners in the vicinity were previously written to in May 2022, and that further correspondence was to be issued following the incident.</p>	



3. Management and Control

		Answer
3.1	Is the water treatment plant resilient enough to cope with significant variations in raw water quality or demand?	No
Comment		
There is no raw water ammonia monitor to alert the operator to any significant variations in raw water quality.		

		Answer
3.2	Has the protozoal compliance log treatment requirement been identified for the water treatment plant?	No
Comment		
The protozoal compliance log treatment requirement has not been finalised for the supply. The log treatment requirement has been provisionally classed as Log 3 for the supply, pending peer review of the sanitary survey.		

		Answer
3.3	Are suitable alarm settings in place to alert operators to deteriorating water quality and/or the failure of a critical treatment process?	No
Comment		
There is no continuous turbidity monitor with alarm to verify that turbidity remains < 1 NTU at all times. There are setpoints that trigger shutdowns on low and high chlorine on both the reservoir inlet and outlet. There are no low or high warning alarms associated with the reservoir inlet and outlet chlorine, or pH in place at the water treatment plant.		



4. Site Specific Issues

	Answer
4.1 Were online monitors operational?	No
Comment	
During the audit it was noted that the chlorine and pH monitor associated with the reservoir inlet were offline due to a pump issue.	

Recommendations

Subject	Donoughmore PWS Audit Recommendations 08/11/2023	Due Date	05/01/2024
Action Text	<p>Uisce Éireann is responsible for ensuring a clean and wholesome supply of drinking water and should implement the following recommendation(s) without delay.</p> <ol style="list-style-type: none"> 1. Install a turbidity monitor with alarm on the final water to verify that turbidity is < 1 NTU prior to disinfection. 2. Examine the feasibility of installing a raw water ammonia monitor at the treatment plant. This should include the provision of appropriate alarms/inhibits with the output of the monitor trended on SCADA. 3. Confirm when works are completed to bring the pump associated with the chlorine and pH monitor on the reservoir inlet back into operation. 4. Inform the EPA of any changes to the HSE advice in relation to the ongoing Boil Water Notice (BWN). 5. Provide details of the scope of the works to be undertaken under the Uisce Éireann's National Water Treatment Programme, including a timeframe for the completion of any proposed upgrades. 6. Review alarm and inhibit setpoints at the treatment plant and install appropriate warning alarms, where absent, to alert operators of deteriorating water quality or problems with a critical treatment process before a plant shutdown occurs. 7. i) Confirm the protozoal log treatment requirement for the Donoughmore PWS; ii) confirm how any protozoal log deficit will be addressed, and iii) undertake monitoring for <i>Cryptosporidium</i> as per the Uisce Éireann Rationale for Determining the Frequency of <i>Cryptosporidium</i> in Public Water supplies. 8. Liaise with Cork County Council to ensure that local landowners have been written to in relation to their obligations under the European Union (Good Agricultural Practice for Protection of Waters) Regulations 2022 as amended. 9. Ensure that i) all boreholes are lined and sealed in accordance with EPA Advice Note No. 14: Borehole Construction and Wellhead Protection, and ii) all redundant boreholes which were associated with the Donoughmore PWS are backfilled under the advice and guidance of a suitably qualified professional in accordance with best practice. <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 05/01/2024 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>		