

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	Ballyclough & Mount North
Organisation	Uisce Éireann
Scheme Code	0500PUB1316
County	Cork
Site Visit Reference No.	SV27949

Report Detail	
Issue Date	18/07/2023
Prepared By	Criona Doyle

Site Visit Detail			
Date Of Inspection	28/06/2023	Announced	Yes
Time In	11:55	Time Out	13:30
EPA Inspector(s)	Criona Doyle Paul Buckley		
Additional Visitors	David O'Malley		
Company Personnel	Uisce Éireann: Claire Hurley; Cormac Bergin; Aine Butler. Cork County Council (working in partnership with Uisce Éireann): Jason O'Donoghue; Pauline McAree; Kevin McAuliffe.		

> Summary of Key Findings

1. The protozoal log treatment requirement for the Mount North Water Treatment Plant (WTP) has not been confirmed to date and there is no treatment barrier to prevent *Cryptosporidium* entering the water supply. Monitoring of *Cryptosporidium* should continue as per the Uisce Éireann *Rationale for Determining the Frequency of Cryptosporidium in Public Water Supplies* until the log deficit is addressed.

> Introduction

The Ballyclough and Mount North Public Water Supply (PWS) serves a population of 1,977 with an average daily output of 1,135m³/d (EDEN figures). The supply is served by 2 no. separate water treatment plants. This audit relates to the Mount North Water Treatment Plant (WTP) which provides on average 1,300m³/d of treated water to the Ballyclough and Mount North Public Water Supply.

Raw water is obtained from a spring which is augmented by a borehole supply during the summer months. Treatment includes chlorination and fluoridation.

The audit was undertaken to assess Uisce Éireann's performance in producing clean and wholesome water. The supply is on the EPA's Remedial Action List under the category of inadequate treatment for *Cryptosporidium* since January 2023.

> Supply Zones Areas Inspected

The audit consisted of an inspection of the raw water sources (spring and borehole), the chlorination and fluoridation treatment stages and the Mount North reservoir.



1. Source Protection

	Answer
1.1	Is the abstraction source(s) adequately protected against contamination? Comment The spring source is located within a secure and fully covered collection area. The borehole source, which is used to augment the spring source in the summer months, is covered by a secure above ground chamber with a fully sealed wellhead. There are no continuous raw water monitors on the individual sources but monitoring of UVT and turbidity is undertaken in the combined raw water sump. Cork County Council indicated that the raw water sampling and monitoring programme for the Mount North WTP is due to recommence in 2024. Uisce Éireann and Cork County Council could not confirm when local landowners were written to in relation to their obligations under the <i>European Union (Good Agricultural Practice for Protection of Waters) Regulations 2022</i> as amended.



2. Disinfection

		Answer
2.1	Does the trend in chlorine residual at the treatment plant indicate adequate and stable levels of disinfection?	Yes
Comment		
The residual chlorine trend for the period 21/05/23 to 21/06/23 was submitted as part of the pre audit information. The trend indicated stable residual chlorine levels. There was a data gap on the trend from the Countywide SCADA (01/06/23) and the issue is being investigated by Cully Automation.		

		Answer
2.2	Is the residual chlorine monitored at a suitable sample location after contact time has been completed?	No
Comment		
A copy of the contact time calculation was provided (on 07/07/23) following the audit. There is no residual chlorine monitor on the reservoir outlet after contact time has been achieved.		



3. Reservoirs and Distribution Networks

		Answer
3.1	Is treated water in tanks and reservoirs suitably protected against contamination?	No
Comment		
The reservoir hatches are sealed and locked. The vents on the side of the reservoir contained a coarse mesh. There was no insect proof mesh on the vents.		

		Answer
3.2	Are reservoirs adequately inspected and maintained?	No
Comment		
Uisce Éireann and Cork County Council could not confirm when the reservoir was last cleaned or if it was on the Uisce Éireann Reservoir Cleaning Programme.		



4. Management and Control

		Answer
4.1	Has the protozoal compliance log treatment requirement been identified for the water treatment plant?	No
Comment		
<p>The protozoal log treatment requirement for the Mount North WTP has not been determined. Uisce Éireann confirmed that Disinfection Programme Upgrade works have been identified for the WTP and are at detailed design stage. Following the audit the Remedial Action List (RAL) update received from Uisce Eireann on 30/06/2023 indicated a completion date of Q4 2024 for the disinfection upgrades which will address the <i>Cryptosporidium</i> risk for the WTP.</p> <p>Cork County Council outlined that monthly monitoring for <i>Cryptosporidium</i> is being undertaken on the Mount North WTP in accordance with the Uisce Éireann <i>Rationale for Determining the Frequency of Cryptosporidium in Public Water Supplies</i>. The <i>Cryptosporidium</i> monitoring results were submitted to the EPA subsequent to the audit on the 28/06/23. The results for 2022 and 2023 indicated no detections of <i>Cryptosporidium</i>, however no monitoring results were provided for July 2022, October 2022 and April 2023. <i>Giardia</i> was detected in the supply on 15/06/2021.</p>		

		Answer
4.2	Are suitable plant shutdowns/inhibits in place to prevent the entry of inadequately treated water entering the distribution network?	No
Comment		
<p>The following plant shutdowns / inhibits are in place to prevent inadequately treated water from entering the network.</p> <ul style="list-style-type: none"> • Low chlorine warning alarm 0.40mg/l (3 minutes time delay) and shutdown 0.30mg/l (10 minutes time delay); • High chlorine warning alarm 1.98mg/l (3 minutes time delay); • High Turbidity warning alarm 0.90 NTU (3 minutes time delay) and shutdown 1.0 NTU (10 minutes time delay). <p>The 10 minute time delay in place on the chlorine shutdown does not meet the 5 minute time delay recommended in the <i>EPA Water Treatment Manual: Disinfection</i>. There is no shutdown linked to the high chlorine alarm setpoint.</p>		



5. Site Specific Issues

		Answer
5.1	Are the EDEN figures correct ?	No
Comment		
The figure provided for the average daily volume produced at the Mount North WTP (1,300m ³ /d) at the audit is higher than the volume reported on EPA EDEN portal (1,135m ³ /d) for the Ballyclough and Mount North PWS.		

		Answer
5.2	Is a continuous pH monitor installed at the WTP ?	No
Comment		
There is no continuous pH monitor installed at the WTP.		

Recommendations

Subject	Mount North WTP - Audit	Due Date	18/08/2023
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. (i) Confirm the protozoal log treatment requirement for the supply; (ii) confirm how the protozoal log deficit will be addressed and (iii) undertake monitoring for <i>Cryptosporidium</i> as per the Uisce Éireann <i>Rationale for Determining the Frequency of Cryptosporidium in Public Water Supplies</i>. 2. Review the time delay on the chlorine alarm inhibit (shutdown) to ensure it meet the guidance in <i>EPA Water Treatment Manual: Disinfection</i> (ii) install a shutdown linked to the high chlorine alarm setpoint and (iii) install a residual chlorine monitor at a suitable location to validate contact time. 3. Liaise with Cork County Council to ensure that local landowners have been written to in relation to their obligations under the <i>European Union (Good Agricultural Practice for Protection of Waters) Regulations 2022</i> as amended. 4. Provide details of the planned works to address the issue with data gaps on the County wide SCADA and the timeframe for completion of the remedial works. 5. Confirm the Mount North Reservoir is on the Uisce Éireann Reservoir Cleaning Programme. 6. Ensure continuous online monitors with alarms and inhibits are installed to monitor pH (final water). 7. Ensure that all vents on the reservoir are secured against ingress of animals and fitted with insect proof mesh. 8. Update the EDEN figures for the Ballyclough Mount North PWS to reflect the correct average daily volume. <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 18/08/2023 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>		