

Site Visit Report

Under the *European Union (Drinking Water) Regulations 2014* as amended, 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	Ballymahon
Organisation	Uisce Éireann
Scheme Code	2000PUB1005
County	Longford
Site Visit Reference No.	SV27290

Report Detail	
Issue Date	16/02/2023
Prepared By	Michelle Roche

Site Visit Detail			
Date Of Inspection	16/01/2023	Announced	Yes
Time In	11:20	Time Out	13:55
EPA Inspector(s)	Michelle Roche Ruth Barrington		
Additional Visitors			
Company Personnel	Uisce Éireann: Ed Haythornthwaite, Joseph Moran, John Gavin, Karina O'Grady and Barry Leonard. Longford County Council (Working under Service Level Agreement with Uisce Éireann): David Gibbons and John Byrne.		

> Summary of Key Findings

1. Ballymahon public water supply (PWS) was audited on 16/01/23 to assess the supply for removal from the EPA Remedial Action List (RAL). The supply was previously removed from the RAL in 2019, however was re-added in September 2021 due to elevated levels of THMs, related to the temporary removal of pH correction on the raw water.
2. Ballymahon PWS was removed from the EPA RAL in January 2023. pH correction with sulphuric acid was re-installed at Abbeyshrule water treatment plant (WTP) in February 2022 and monthly THM monitoring in the distribution network from February to November 2022 demonstrates THM compliance.
3. Filter media depth in filter 2 was below the recommended minimum depth outlined in the *EPA Water Treatment Manual: Filtration*. Media depth in filters 1 and 3 could not be confirmed at the audit as there were no level gauges installed in the filters.

> Introduction

The Ballymahon public water supply serves a population of approximately 8,100 with water treated from Abbeyshrule WTP. Treatment consists of pH correction, coagulation, flocculation, clarification, rapid gravity filtration, chlorination and fluoridation.

The supply has three reservoirs at Richmond Hill, Ballymahon Tower and Moydow Reservoir. There are two chlorine booster stations on the distribution network located at Ballymahon Tower and Abbeyderg.

> Supply Zones Areas Inspected

The audit covered the raw water abstraction on the River Inny and treatment processes at Abbeyshrule WTP. Fluoridation was not covered by the audit.

The audit focused on the management and control procedures in place on the supply.



1. Source Protection

	Answer
1.1	Is the abstraction source(s) adequately protected against contamination? Yes
Comment	
<p>1. Raw water is abstracted from the River Inny at Abbeyshrule WTP. Continuous online monitors for turbidity, pH, UVT, ammonia and hydrocarbons are in place on the raw water.</p> <p>2. Abbeyshrule Aerodrome is located across the river from the WTP. Longford County Council have made contact with the management of the Aerodrome previously to inform them that a drinking water intake is located in close proximity to the Aerodrome, however this has not been repeated recently and contact details on both sides may be out of date.</p>	



2. Coagulation Flocculation and Clarification (CFC) Stage

		Answer
2.1	Are the CFC processes appropriately controlled?	Yes
Comment		
<p>1. Sulphuric acid for pH correction of the raw water is dosed prior to the ferric aluminium sulphate (Cemifloc 101) coagulant. A coagulation pH of between 6.0 and 6.5 is maintained via a feedback loop from an automatic pH monitor, sampling after the pH and coagulant are dosed.</p> <p>2. At the time of the audit pH correction had been offline since November 2022 due to a leak in the sulphuric acid delivery line, within the chemical storage bund. The automatic coagulant dose had been increased to maintain the coagulation pH.</p> <p>3. Information supplied by Uisce Éireann after the audit estimates that the pH correction will be re-instated by mid February 2023.</p>		

		Answer
2.2	Were the CFC processes visually observed to be operating appropriately during the audit?	Yes
Comment		
<p>1. Suspended pin floc was observed in both clarifiers during the audit. Uisce Éireann and Longford County Council stated that pin floc is regularly observed in the clarifiers and has been for several years.</p> <p>2. Uisce Éireann stated that the pin floc was assessed as part of the filter assessment carried out in 2021 and was not considered to be causing a problem for filter performance or the quality of the final water.</p>		



3. Filtration

		Answer
3.1	Are the filters designed and managed in accordance with EPA guidance?	No
Comment		
<p>1. There are no level gauges installed in any of the three rapid gravity filters at Abbeyshrule WTP, however the caretaker marked the media depth on the inside wall of each filter when filter media was last replaced in 2012. The media depth was 800mm at that time, though an unknown quantity of remaining sand was added to filters 1 and 3.</p> <p>2. Filter media depth in filter 2 was observed to be below the mark on the inside wall of the filter indicating that current filter media depth is less than 800mm and therefore less than the minimum depth of 1000mm recommended in the <i>EPA Water Treatment Manual: Filtration</i>.</p>		



4. Disinfection

		Answer
4.1	Is there a procedure in place for caretakers and contractors to check and sign-off that all alarms have been correctly re-set on completion of any maintenance work?	No
Comment		
<p>1. A procedure was put in place in 2019 to ensure that PLC inhibits and fail-safes are verified after any works have been carried out. This procedure requires contractors working on site to sign the tag-in/tag-out form, to confirm the PLC is in proper working order.</p> <p>2. It could not be confirmed by Uisce Éireann or Longford County Council during the audit that this procedure was still being used at Abbeyshrule WTP and operational staff did not appear to be aware of the tag-in/tag out form.</p>		
		Answer
4.2	Is there a chlorine residual ≥ 0.1 mg/l throughout the network?	Yes
Comment		
<p>1. Network chlorine residuals from the month of December were examined during the audit and all found to be above 0.1mg/l however many of the sample locations were not at the extremities of the network.</p>		



5. Treatment Process Chemicals

	Answer
5.1 Are treatment process chemicals appropriately managed and stored?	No
Comment	
1. A number of empty drums of sodium hypochlorite were observed in the disinfection room at the WTP. Chemical containers should be stored in a bunded area at all times.	



6. Management and Control

		Answer
6.1	Are relevant alarms dialled out via a cascade system to allow a timely response by plant operators?	No
Comment		
1. Alarm call-outs from Abbeyshrule WTP go to both caretakers at the same time, however alarms do not cascade out further than that to other operational staff within Longford County Council or Uisce Éireann.		



7. Supply on the Remedial Action List

	Answer
7.1 Do the audit findings support progress made with the Remedial Action List upgrades?	Yes
Comment	
<p>1. Ballymahon PWS was previously removed from the RAL in 2019, however was re-added in September 2021 due to elevated levels of THMs, related to the temporary removal of pH correction on the raw water.</p> <p>2. pH correction with sulphuric acid was reinstalled at Abbeyshrule water treatment plant (WTP) in February 2022 and monthly THM monitoring in the distribution network from February to November 2022 demonstrates THM compliance.</p> <p>3. The audit findings will assist in recommending the Ballymahon PWS for removal from the EPA RAL.</p>	

Recommendations

Subject	Ballymahon Recommendations	Due Date	16/03/2023
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"><li>1. Ensure filter media depths in the three rapid gravity filters are maintained in accordance with the <i>EPA Water Treatment Manual: Filtration</i>.<li>2. Ensure there is a procedure in place for caretakers and contractors to check and sign-off that all alarms have been correctly re-set on completion of any maintenance work.<li>3. Ensure that relevant plant alarms are dialled out to a number of staff via a cascade system to allow a timely response in the event of staff unavailability.<li>4. Ensure that the extremities of the network are included as residual chlorine monitoring locations, several times per week, to ensure a minimum residual chlorine of 0.1 mg/l is maintained.<li>5. Ensure that all chemicals are stored in bunded areas capable of containing at least 110% of the volume of chemicals stored therein.<li>6. Communicate with the management of Abbeyshrule Aerodrome to ensure they are aware of the drinking water abstraction in proximity to the Aerodrome and relevant contact details for the Aerodrome and Abbeyshrule WTP operational staff are kept up to date. <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 16/03/23 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>		