

# 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	
<b>Name of Installation</b>	Jamestown/Effin PWS
<b>Organisation</b>	Uisce Éireann
<b>Scheme Code</b>	1900PUB1033
<b>County</b>	Limerick
<b>Site Visit Reference No.</b>	SV28401

Report Detail	
<b>Issue Date</b>	18/12/2023
<b>Prepared By</b>	Orla Harrington

Site Visit Detail			
<b>Date Of Inspection</b>	29/11/2023	<b>Announced</b>	Yes
<b>Time In</b>	10:30	<b>Time Out</b>	11:30
<b>EPA Inspector(s)</b>	Orla Harrington		
<b>Additional Visitors</b>			
<b>Company Personnel</b>	Uisce Éireann: Susan Cook.  Limerick City and County Council (working in partnership with Uisce Éireann): Diarmuid O'Dea, Willie Hurley.		

## > Summary of Key Findings

1. The protozoal barrier on the slow sand filters at Jamestown/Effin water treatment plant is not fully protected by suitable alarms and inhibits as set out in the EPA Water Treatment Manual: Filtration in order to verify the protozoal barrier and to prevent the entry of inadequately treated water into the supply.
2. Uisce Éireann confirmed that the Jamestown/Effin Public Water Supply spring and groundwater source have a protozoal log credit requirement of 3 log. Currently treatment of the spring source by slow sand filtration provides 2.5 log credit if operated in accordance with the log credit performance approach. This gives a -0.5 log treatment deficit.
3. There is no treatment barrier to *Cryptosporidium* entering the water supply from the groundwater source serving Jamestown/Effin Public Water Supply.
4. Uisce Éireann should monitor for *Cryptosporidium* in line with *Uisce Éireann's Rationale for Determining the Frequency of Cryptosporidium in Public Water Supplies*.

## > Introduction

Jamestown/Effin Public Water Supply (PWS) serves a population of 902 people and produces 571 m<sup>3</sup> of treated water per day. Raw water is sourced from Jamestown springs which consists of six spring chambers located on the northern slopes of the Ballyhoura mountains. The springs drain towards a collection chamber before they flow by gravity 1.6 km to the water treatment plant (WTP). Treatment consists of slow sand filtration and disinfection by chlorination.

Raw water is also sourced from one borehole, referred to as the 'Mount Russell well' which is located about 300 m from the plant and used to augment the spring source. Treatment consists of chlorination before being pumped to the on-site reservoir.

The focus of the audit was on protozoal barriers at the plant.

## > Supply Zones Areas Inspected

The audit consisted of an inspection of the treatment plant, including the 'Mount Russell well'. The Jamestown springs were not visited as part of the audit.



## 1. Protozoal Barriers Audits 2023

		Answer
1.1	Has UÉ identified the protozoal compliance log treatment requirement for the water treatment plant?	Yes
<b>Comment</b>		
1. On the day of the audit, Uisce Éireann advised that the protozoal compliance log treatment requirement for the plant has been assigned as 3 log.		

		Answer
1.2	Are the filters designed and managed in accordance with EPA guidance?	No
<b>Comment</b>		
1. There are four slow sand filters at the plant. Limerick City and County Council advised that only two sand filters are in use, operating in a duty/standby arrangement with a routine switchover every six months.		
2. A number of deficiencies in the operation and management of the sand filters were noted including the following: <ul style="list-style-type: none"> <li>• The current depth of the media in the slow sand filters could not be confirmed. Limerick City and County Council stated that the sand media was last replaced 15 years ago.</li> <li>• There is no media depth gauge at the filters.</li> <li>• There is no continuous turbidity monitor on the feed water.</li> <li>• There is no continuous turbidity monitor with alarm set-points on each individual sand filter.</li> <li>• There is no continuous head loss or water level monitor on each sand filter for the purpose of initiating filter cleaning.</li> <li>• There is a run to waste facility on the filters, however it is brought back into service based on visual observation and a final turbidity reading of &lt;1 NTU.</li> </ul>		
3. The Jamestown/Effin PWS source has a protozoal log credit requirement of 3 log. Currently treatment of the spring source provides 2.5 log credit if operated in accordance with the log credit performance approach. This gives a -0.5 log treatment deficit. The borehole source does not pass through the sand filters. This gives a - 3 log deficit. Monitoring of <i>Cryptosporidium</i> should continue until the log deficit is addressed.		
4. Final water turbidity trend data between 4/11/2023 and 21/11/2023 demonstrated turbidity consistently below 0.5 NTU.		

1.3

Are alarms and shutdowns on each filter, on the combined filtered water and final water in accordance with the EPA Filtration Manual?

**Answer**

No

**Comment**

1. Refer to point 1.2 above.



## 2. Site Specific Issues

	Answer
2.1 Is the information reported by Uisce Éireann on the EPA EDEN portal correct?	No
<b>Comment</b>	
1. The daily volume and population served listed on EDEN did not match the figures reported at the audit.	

## Recommendations

<b>Subject</b>	Jamestown/Effin PWS - Audit Report	<b>Due Date</b>	22/01/2024
<b>Action Text</b>	<p><b>Uisce Éireann is responsible for ensuring a clean and wholesome supply of drinking water and should implement the following recommendation(s) without delay.</b></p> <ol style="list-style-type: none"><li>1. a) Identify how the log treatment deficit will be addressed; b) monitor the supply in accordance with the <i>Uisce Éireann Rationale for Monitoring Cryptosporidium in Public Water Supplies</i> until the log deficit is addressed.</li><li>2. a) install turbidity monitors with appropriate alarms and inhibits on each slow sand filter and on the combined filtered water to verify the log credit approach as set out in the EPA Water Treatment Manual: Filtration Manual; b) install a turbidity monitor on the slow sand filter feed water; c) confirm depth of media in the slow sand filters; d) install a filter media depth gauge; e) install a continuous monitor for water levels and headloss for each filter.</li><li>3. Update EDEN with the correct population and volume produced at this water treatment plant.</li></ol> <p><b>Actions required by Uisce Éireann</b></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 22/01/2024 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>		