

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	Burncourt Regional
Organisation	Uisce Éireann
Scheme Code	2900PUB0105
County	Tipperary
Site Visit Reference No.	SV28250

Report Detail	
Issue Date	25/10/2023
Prepared By	Criona Doyle

Site Visit Detail			
Date Of Inspection	11/10/2023	Announced	Yes
Time In	10:30	Time Out	11:15
EPA Inspector(s)	Criona Doyle		
Additional Visitors			
Company Personnel	Uisce Eireann: Pat Duggan; Michael Byrne. Glanua: David Flanagan.		

> Summary of Key Findings

1. A Boil Water Notice was placed on the Burncourt Regional Public Water Supply on 10/07/2023 in response to inadequate disinfection. Low water levels in the reservoir, following plant shutdowns on 07/07/2023 and 08/07/2023, resulted in inadequate contact time at the water treatment plant and inadequate chlorine residuals in the distribution network. The Boil Water Notice was also placed on the Burncourt Ballylooby Public Water Supply which obtains 50% of its treated water from the Burncourt Regional Public Water Supply. The Boil Water Notice on both supplies was lifted on 21/07/2023 following the return of the Burncourt Regional Water Treatment Plant to compliance.
2. A further Boil Water Notice was placed on the Burncourt Regional PWS on 27/07/2023 following the deterioration in the raw water quality. The Water Treatment Plant was unable to satisfactorily treat the water and water levels could not be maintained in the reservoir to provide adequate contact time for the disinfection treatment stage. The Boil Water Notice also affected the adjacent Burncourt Ballylooby Public Water Supply. On the day of the audit the Boil Water Notice remained in place on both supplies.
3. Process optimisation investigative works are ongoing at the Burncourt Regional Water Treatment Plant to provide a more resilient coagulation treatment process to ensure it is capable of dealing with the variations in raw water quality. Upgrade works on the disinfection stage are also taking place to include the live trending of contact time to reduce the risk of the discharge of inadequately disinfected water to the network.

> Introduction

The Burncourt Regional Public Water Supply (PWS) serves a population of 1,902 and produces a volume of 1,281m³/day. The treatment plant is operated by Glanua under a design, build and operate contract (DBO).

Raw water is obtained from the Burncourt River and is treated at the Glengarra Water Treatment Plant (WTP). Treatment includes coagulation, clarification via dissolved air flotation (DAF) with multimedia filtration, chlorination and fluoridation. The Burncourt Regional PWS supplies 50% of the supply of the adjacent Burncourt Ballylooby PWS.

The audit focused on the two Boil Water Notices placed on both the Burncourt Regional PWS (population 1,857) and the Burncourt Ballylooby PWS (population 1,728) from 10/07/2023 to 21/07/2023 (1st BWN) and 27/07/2023 to date (2nd BWN).

> Supply Zones Areas Inspected

The audit consisted of interviews with Uisce Éireann and Glanua staff and a review of the continuous online turbidity and chlorine residual trends.



1.1

	Answer
Was the incident suitably alerted to the plant operators, escalated and managed in order to maintain water quality and protect public health?	No
Comment	
<p>Boil Water Notice 1 (10/07/2023 to 21/07/2023)</p> <p>A deterioration in the raw water quality between 07/07/2023 and 08/07/2023 resulted in plant shutdown as the coagulation process could not adequately treat the raw water due to its low UVT and low alkalinity. The Glanua process optimisation team made onsite process adjustment and the plant was run to waste to protect the filters. The response to the increase in the filtered water turbidities was appropriately managed between the 07/07/2023 and 10/07/2023 to meet the protozoal log treatment requirement.</p> <p>The low water level in the reservoir impacted on the contact time provided in the reservoir and resulted in inadequate disinfection for a 24 hour period over the 08/07/2023 and 09/07/23. The impact of the low water level on the contact time was not identified by the DBO contractor until the 10/07/2023 when inadequate residual chlorine levels were observed in the network by Tipperary County Council. Consultation took place between Uisce Eireann and the HSE on 10/10/2023 and a Boil Water Notice (BWN) was put in place to provide protection to the public while the inadequately disinfected water passed through the network over the following few days. The inadequate contact time was not promptly identified by the DBO contractor or escalated to Uisce Eireann and inadequately disinfected water was discharged to the network.</p> <p>A deterioration of the raw water UVT occurred again on the morning of 10/07/2023 and the coagulation stage could not adequately treat the water. The WTP shutdown in response to the elevated filtered water turbidities. The BWN remained in place until 21/07/2023 until the plant returned to normal operation.</p> <p>Boil Water Notice 2 (placed on 27/07/2023 and in place on day of the audit)</p> <p>A further BWN was issued on 27/07/2023 in response to the risk of inadequate disinfection as a result of low water levels following a plant shutdown on 26/07/2023 following a deterioration of the raw water quality. No inadequately disinfected water was discharged to the network prior to the placing of the BWN. The audit confirmed this incident had been appropriately escalated and managed to maintain water quality and protect public health. The BWN remained in place at the time of the audit as process optimisation works were still taking place.</p> <p>At the audit the operator outlined a number of measures that were being implemented to prevent a reoccurrence of the boil water notices.</p>	



2. Management and Control

2.1

Is the water treatment plant resilient enough to cope with significant variations in raw water quality or demand?

Answer

No

Comment

The automatic coagulation process is controlled by the PLC based on the UVT dose bands. The water treatment plant could not adequately treat the raw water experienced on a number of days in July 2023 due to its low UVT and low alkalinity. This resulted in plant shutdowns on 07/07/2023, 08/07/2023, 10/07/2023 and 27/07/2023 which impacted on the disinfection system and resulted in two boil water notices being put in place from 10/07/2023 to 21/07/2023 and 27/07/2023 to date.

On the day of the audit the following measures were being implemented to improve the resilience of the water treatment plant to deal with the variation in the raw water conditions:

- Tipperary County Council are examining the catchment to identify possible causes for the change in raw water quality.
- A series of trials commenced on 09/10/2023 examining alternative coagulants, coagulant aids, acid dosing and the option of installing a streaming current monitor to assist with process control.

Recommendations

Subject	Burncourt Regional PWS - Audit	Due Date	25/11/2023
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. Notify the EPA when the BWN is lifted.2. Provide (i) a full list of the planned disinfection upgrade works and (ii) confirmation that the works have been completed.3. Provide (i) an update on the outcome of the investigations into the process optimisation works; (ii) confirm what changes have been made to the treatment process to ensure the resilience of the supply and (iii) details of the outcome of the catchment investigations. <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 25/11/2023 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>		