

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	Killeagh
Organisation	Uisce Éireann
Scheme Code	0500PUB2504
County	Cork
Site Visit Reference No.	SV29548

Report Detail	
Issue Date	16/09/2024
Prepared By	Paul Buckley

Site Visit Detail			
Date Of Inspection	15/08/2024	Announced	Yes
Time In	09:25	Time Out	10:45
EPA Inspector(s)	Paul Buckley Kelly Oforji - Student		
Additional Visitors			
Company Personnel	Uisce Éireann - Claire Hurley, Sharon O'Dwyer. Cork County Council (working in partnership with Uisce Éireann) - Killian Tate, Pdraig Griffin, Eimear O'Riordan.		

> Summary of Key Findings

1. There are no high turbidity alarms and shutdowns associated with the raw water or the final water at either the Ballymacoda Road or Youghal Road treatment plants. These are required to prevent the entry of inadequately treated water into the supply. Turbidity monitoring is in place at both treatment plants on the final water but the trends are not available to view at the plant or remotely.
2. There is no remote access to trend data for the UV disinfection units or the turbidity monitor at the Ballymacoda Road treatment plant. There is no remote access to the trend data for the UV disinfection units, the turbidity monitor, or the residual chlorine monitor at the Youghal Road treatment plant.
3. The protozoal log treatment requirements for the Ballymacoda Road and Youghal Road treatment plants have not been determined.

> Introduction

The Killeagh Public Water Supply (PWS) supplies an average of 280 m³/day of water, serving a population of 1,027 people.

The supply is sourced from 2 No. Boreholes, located at the Ballymacoda Road water treatment plant and at the Youghal Road treatment plant respectively. Treatment at both water treatment plants consists of ultraviolet (UV) and chlorination disinfection.

The disinfection types and the volume supplied are not in line with the information noted on the EPA EDEN database.

The audit was undertaken to assess Uisce Éireann's performance in producing clean and wholesome water with a focus on the alarms and inhibits in place at the treatment plant and the procedures in place to ensure appropriate oversight of the treatment processes.

> Supply Zones Areas Inspected

The ultraviolet disinfection systems and chlorine dosing systems at the Ballymacoda Road treatment plant and the Youghal Road treatment plant were inspected.



1. Management and Control

		Answer
1.1	Has the protozoal compliance log treatment requirement been identified for the water treatment plant?	No
Comment		
The protozoal compliance log treatment requirements have not been identified for the Ballymacoda Road and Youghal Road water treatment plants. The sanitary surveys have not been completed and no timeline for the completion of the surveys was available during the audit.		



2. Alarms, Inhibits & Oversight Audits 2024

	Answer	
2.1	Is suitable continuous monitoring in place to verify treatment performance?	No
Comment		
<p>1. The residual chlorine monitor at the Youghal Road treatment plant is not trending on the HMI or the countywide SCADA system.</p> <p>2. Continuous turbidity monitoring is in place for the final water at both treatment plants but neither monitor is trending on the HMI or the countywide SCADA system.</p> <p>3. There are no continuous UV Intensity (UVI) or UV Transmittance (UVT) trend data available for the Ballymacoda Road treatment plant.</p>		

	Answer	
2.2	Were online monitors operational?	No
Comment		
<p>1. There is no UV Intensity (UVI) trend data available for the Ballymacoda Road treatment plant.</p> <p>2. The UV2 unit at the Youghal Road treatment plant is not trending on the HMI or on the countywide SCADA. The remaining units at the Youghal Road water treatment plant, UV1, UV3, and UV4, are all trending.</p>		

	Answer	
2.3	Was there a plan in place for repair of any monitor not in operation during the audit?	Yes
Comment		
<p>Uisce Éireann stated that the timeline for the repair of the communications issues at the Ballymacoda Road and Youghal Road sites will be completed in Q4 2024.</p>		

	Answer	
2.4	Are suitable alarm settings in place to alert operators to deteriorating water quality or the failure of a critical treatment process?	No
Comment		

At the Ballymacoda Road treatment plant the following was noted;

1. There is no high turbidity alarm in place at the plant.
2. There is no UV Intensity related alarm in place at the plant.

At the Youghal Road treatment plant the following was noted:

1. There is no high turbidity alarm in place at the plant.
2. There is no UV Intensity related alarm in place at the plant.

		Answer
2.5	Has UÉ carried out an alarm and inhibit review at the water treatment plant?	Yes
Comment		
Uisce Éireann confirmed that the alarm and inhibit review was for both the Ballymacoda Road treatment plant and the Youghal Road treatment plant was completed in June 2024.		

		Answer
2.6	Were all findings of the UÉ alarm and inhibit review implemented?	No
Comment		
<p>A number of recommendations remain outstanding from the alarm and inhibit review for both the Ballymacoda Road and Youghal Road treatment plants, including but not limited to the following:</p> <ul style="list-style-type: none"> - The installation of alarms and shut downs linked to turbidity; - The installation of a pH meter at the Ballymacoda Road treatment plant; - The installation of alarms and shut downs linked to UV dose, and - The updating of the HMI systems at both treatment plants. 		

		Answer
2.7	Are suitable plant shutdowns/inhibits in place to prevent the entry of inadequately treated water entering the distribution network?	No
Comment		
<p>1. There are no shutdowns based on high turbidity at either the Ballymacoda Road or Youghal Road treatment plants.</p> <p>2. Uisce Éireann stated that shutdowns are in place for the UV units at the Ballymacoda Road and Youghal Road treatment plants based on calculated UV Dose. These setpoints are not accessible on the plant HMI systems or on the countywide SCADA system.</p> <p>3. There is no shutdown in place related to high residual chlorine at the Ballymacoda Road treatment plant. There are no shutdowns in place related to low or high residual chlorine at the Youghal Road treatment plant.</p>		

	Answer
2.8 Are plant performance trends accessible by operational staff at the water treatment plant?	No
Comment	
<p>1. The turbidity and UV Intensity trend data were not available at the Ballymacoda Road treatment plant.</p> <p>2. The chlorine, turbidity and UV Intensity trend data were not available at the Youghal Road treatment plant.</p>	

	Answer
2.9 Are plant performance trends accessible remotely?	No
Comment	
<p>1. The UV Intensity trend for the Ballymacoda Road treatment plant was not accessible on the countywide SCADA system.</p> <p>2. The UV2 unit at the Youghal Road treatment plant is not trending on the HMI or on the countywide SCADA. The remaining units, UV1, UV3, and UV4, are all trending.</p>	

	Answer
2.10 Did plant performance trends demonstrate that data was being captured and recorded at all times?	No
Comment	
<p>1. The turbidity and UV Intensity trend data were not available at the Ballymacoda Road treatment plant.</p> <p>2. The chlorine, turbidity and UV Intensity trend data were not available at the Youghal Road treatment plant.</p>	

Recommendations

Subject	Killeagh PWS Audit Recommendations 15/08/2024	Due Date	16/10/2024
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. i) Implement turbidity alarms and shutdowns to protect the integrity of the ultraviolet (UV) disinfection system, and ii) Inform the HSE that the protozoal barrier cannot be verified due to the absence of the required turbidity and UV alarms and shutdowns at the Ballymacoda Road water treatment plant.2. Complete the implementation of the findings of the alarms and inhibits reviews for the Ballymacoda Road and Youghal Road water treatment plants.3. i) Complete the source sanitary survey for both groundwater sources and provide the protozoal log treatment requirements, and ii) Provide details on how any log deficit, if identified, will be addressed.4. Ensure that all monitors at the Ballymacoda Road and Youghal Road water treatment plants are trending onsite and on the countrywide SCADA system.5. Ensure that monitoring of residual chlorine is undertaken several times a week at different points of the network to include network extremities, and that records of the monitoring results are maintained, ensuring chlorine is > 0.1 mg/L in the network.6. Update EDEN with the correct volume and treatment types for the supply. <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 16/10/2024 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>		