

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	Kells-Oldcastle
Organisation	Uisce Éireann
Scheme Code	2300PUB1011
County	Meath
Site Visit Reference No.	SV28137

Report Detail	
Issue Date	27/09/2023
Prepared By	Lorcan Farrell

Site Visit Detail			
Date Of Inspection	31/08/2023	Announced	No
Time In	10:30	Time Out	12:30
EPA Inspector(s)	Lorcan Farrell		
Additional Visitors			
Company Personnel	Uisce Éireann: Daniel Behan. Meath County Council (Working in partnership with Uisce Éireann): John Carroll, James Connell, Linda Doran, Helen McDonnell.		

> Summary of Key Findings

1. Lough Bane Water Treatment Plant (WTP) was operating satisfactorily on the day of the audit.
2. There were no warning alarm setpoints in place on the chlorine residual monitors at the treatment plant to alert the operator in the event of deteriorating water quality or the failure of a critical treatment process before a plant shutdown occurs.

> Introduction

Kells-Oldcastle Public Water Supply serves a population of 11,530 people (EDEN) and is supplied by Lough Bane and Clavin's Bridge WTPs. This audit focused specifically on Lough Bane WTP which sources its water from Lough Bane and produces approximately 3,200 m³/day. Treatment at the plant consists of pressure filtration, UV disinfection, chlorination and fluoridation.

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 treatment processes.

> Supply Zones Areas Inspected

The audit included a site tour of Lough Bane WTP.



1. Alarms, Inhibits & Oversight Audits 2023

		Answer
1.1	Were online monitors operational?	No
Comment		
1. The treated water UVT monitor was displaying a warning on the monitor screen. Meath County Council staff confirmed that a contractor had attended site and that a replacement part was on order. No date was available for when repairs would be complete.		

		Answer
1.2	Are suitable alarm settings in place to alert operators to deteriorating water quality or the failure of a critical treatment process?	No
Comment		
1. There were both high and low chlorine residual shutdown setpoints in place based on the output of the post-dosing chlorine residual monitor at the treatment plant and the chlorine contact time verification monitor located on the outlet of Seefin Hill Reservoir. However, there were no corresponding warning alarm setpoints in place to alert the operator in the event of deteriorating water quality or the failure of a critical treatment process before a plant shutdown occurs.		

		Answer
1.3	Were all findings of the UÉ alarm and inhibit review implemented?	No
Comment		
1. An alarm and inhibit review was carried out in July 2023. Meath County Council stated that actions resulting from this review have not been agreed and that the treatment plant is due to be upgraded under Uisce Éireann's Water Treatment Plant Upgrade Programme. No timescales for these upgrade works were available at the audit.		

		Answer
1.4	Are suitable plant shutdowns/inhibits in place to prevent the entry of inadequately treated water entering the distribution network?	No
Comment		
1. The final water turbidity monitor has a high warning alarm 0.7 NTU and a plant shutdown setpoint of 0.8 NTU with a 15 minute time delay. This shutdown time delay is not in accordance with the 3 minute delay specified in the <i>EPA Water Treatment Manual: Filtration</i> .		



2. Site Specific Issues

	Answer
2.1 Was appropriate validation documentation for the UV disinfection system available at the audit?	No
Comment	
<p>1. Uisce Éireann supplied a DVGW type examination certificate before the audit for the UV disinfection system at the treatment plant. This certificate did not contain information indicating the validated operating criteria under which the system operates. An additional document was presented at the audit which contained operating ranges but referred to USEPA validation testing. The validation protocol under which the UV system at the treatment plant operates could not be confirmed at the audit.</p>	

	Answer
2.2 Are treatment process chemicals appropriately managed and stored?	No
Comment	
<p>1. Cans of sodium hypochlorite were stored at the treatment plant in an unbunded area.</p> <p>2. Fill points for the hydrofluorosilicic and sodium hypochlorite bulk tanks were not within banded areas.</p>	

Recommendations

Subject	Kells-Oldcastle (Lough Bane WTP) Audit Recommendations	Due Date	27/10/2023
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. Review alarm and inhibit setpoints at the treatment plant and install (i) appropriate warning alarms, where absent, to alert operators of deteriorating water quality or problems with a critical treatment process before a plant shutdown occurs and (ii) ensure that the plant shutdown based on final water turbidity leaving the plant is controlled by the regulatory 1 NTU (with a maximum delay of 3 minutes) as detailed in the <i>EPA Water Treatment Manual: Filtration</i>.2. Submit validation documentation for the UV disinfection system in use at the treatment plant outlining the validation protocol and validated operating criteria (flow, minimum UV intensity/dose and UVT) under which the system operates.3. Progress works at the treatment plant under the Uisce Éireann Water Treatment Plant Upgrade Programme.4. Complete repairs of treated water UVT monitor at the treatment plant.5. Review chemical storage arrangements at the treatment plant. Chemicals should be stored in bunded areas capable of containing at least 110% of the volume of chemicals stored therein. Fill points for storage tanks should be within bunded areas. <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 27/10/2023 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>		