

# 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>	Cork City Water Supply
<b>Organisation</b>	Uisce Éireann
<b>Scheme Code</b>	0400PUB1001
<b>County</b>	Cork
<b>Site Visit Reference No.</b>	SV30481

Report Detail	
<b>Issue Date</b>	18/10/2024
<b>Prepared By</b>	Paul Buckley

Site Visit Detail			
<b>Date Of Inspection</b>	18/09/2024	<b>Announced</b>	Yes
<b>Time In</b>	10:30	<b>Time Out</b>	13:55
<b>EPA Inspector(s)</b>	Paul Buckley Regina Campbell		
<b>Additional Visitors</b>			
<b>Company Personnel</b>	Uisce Éireann: Deirdre O'Loughlin, Sharon O'Dwyer, Sean Lynch. Cork City Council (working in partnership with Uisce Éireann): Stephen Hayes.		

## > Summary of Key Findings

1. On 26/08/2024 a large release of water from the Inniscarra Dam caused a disturbance of naturally occurring materials that were deposited on the riverbed, which resulted in an increase in the concentration of manganese in the raw water entering the Lee Road Water Treatment Plant in the subsequent days. This resulted in a number of exceedances of the manganese parametric value, both in the final water leaving the plant and in the network. Complaints from consumers in the network regarding discolouration were elevated between 26/08/2024 and 03/09/2024. Uisce Éireann undertook actions to compensate for the increased manganese in the raw water including reducing production at the plant, switching a number of areas on the network to a supply line from the Inniscarra water treatment plant, and the opening of a scour valve in the Churchfield area in order to flush the network.
2. The audit found that the disinfection systems were operating as normal during the incident and that the turbidity of the final water did not exceed 0.1 NTU over the same period.
3. The Lee Road water treatment plant was operating well on the day of the audit.
4. Uisce Éireann have plans to install a manganese treatment system and an alkalinity dosing system at the water treatment plant to ensure that there is greater capacity for the removal of manganese from the raw water.

## > Introduction

The Cork City Public Water Supply (PWS) supplies an average of 29,434 m<sup>3</sup>/day of water, serving a population of 87,265 people.

The supply is sourced from the River Lee which runs adjacent to the plant on the Lee Road. Treatment consists of coagulation, flocculation, filtration, ultraviolet disinfection, chlorination, pH correction and fluoridation.

The audit was undertaken in response to Uisce Éireann's notification to the EPA of a series of manganese exceedances in the final water leaving the plant and in the network following a significant release of water from Inniscarra Dam on 26/08/2024 which resulted in an increase in manganese concentrations in the raw water.

## > Supply Zones Areas Inspected

The intake, band screen, chemical storage tanks, chemical dosing points, 6 No. clarifiers, sludge bleed valves, 6 No. filters, 2 No. ultraviolet disinfection units, chlorine dosing point, wastewater holding tanks, and the sludge holding tank were inspected.



## 1. Management and Control

		Answer
1.1	Are instrument calibrations within date?	No
<b>Comment</b>		
The calibration labels on the raw water sampling probes for dissolved oxygen, pH, and UVT had expired. Uisce Éireann stated that calibrations had been conducted however the labels had not been replaced.		



## 2. Drinking Water Quality

	Answer	
2.1	Have relevant failures to comply with the requirements of the European Union (Drinking Water) Regulations 2023 been notified to the EPA?	No
<b>Comment</b>		
<p>Following review of the information submitted by Uisce Éireann prior to the audit, it was noted that manganese exceedances (&gt; 50 ug/L) in the final water at the Lee Road treatment plant on the following dates were not notified to the EPA via CRM; 04/07/2024 (55 ug/L), 05/07/2024 (52 ug/L), 19/07/2024 (59 ug/L), 20/07/2024 (76 ug/L), 08/08/2024 (52 ug/L), 09/08/2024 (59 ug/L), 10/08/2024 (55 ug/L), 13/08/2024 (53 ug/L), and 16/08/2024 (53 ug/L). Manganese exceedances in the network on 09/09/2024 at Lotamore, Silversprings (63 ug/L), and at Gardiners Hill, Montenotte (120 ug/L) were also not notified to the EPA.</p> <p>These exceedances were notified to the EPA via CRM following the audit. Uisce Éireann stated that the HSE were aware of the exceedances at the time of their occurrence.</p>		

	Answer	
2.2	Is the treatment plant optimised for the removal of manganese?	No
<b>Comment</b>		
<p>Uisce Éireann have stated that the following treatment systems are to be put in place at the plant to increase the manganese removal capacity:</p> <ul style="list-style-type: none"><li>• Manganese treatment system to reduce the concentration of manganese in the final water at the plant. The estimated completion date for the installation of this system is the end of Q4 2024.</li><li>• Alkalinity conditioning system to maintain alkalinity at the optimal level to allow for the conditioning of the pipework in the network. The estimated completion date for the installation of this system is Q2 2025.</li></ul>		



### 3. Site Specific Issues

	Answer
3.1 Was the incident managed appropriately by Uisce Éireann?	Yes
<b>Comment</b>	
<p>On 26/08/2024 a large release of water from the Inniscarra Dam caused a disturbance of naturally occurring riverbed material downstream of the dam and at the intake to the water treatment plant which lead to higher than usual levels of manganese in the raw water entering the Lee Road Water Treatment Plant in the subsequent days. This resulted in a number of exceedances of the manganese parametric value, both in the final water leaving the plant and in the network. Complaints from consumers in the network regarding discolouration were elevated between 26/08/2024 and 03/09/2024.</p> <p>Uisce Éireann undertook actions to compensate for the increased manganese in the raw water. These actions included reducing production at the plant, switching a number of areas on the network to a supply line from the Inniscarra water treatment plant, and the opening of a scour valve in the Churchfield area in order to flush the network.</p> <p>It was noted that the ultraviolet (UV) and chlorination disinfection systems were operating as normal during the incident and that the turbidity of the final water did not exceed 0.1 NTU over the same period.</p> <p>Uisce Éireann stated that a communication procedure with ESB Networks is in place for releases from the Inniscarra dam where the flow exceeds 50m<sup>3</sup>/second. The flow recorded during this release was 18m<sup>3</sup>/second.</p>	

	Answer
3.2 Is continuous hydrocarbon monitoring ongoing at the raw water intake at the treatment plant?	No
<b>Comment</b>	
<p>There is no hydrocarbon monitor at the raw water intake to ensure that plant operators are alerted to potentially contaminated water entering the water treatment plant.</p>	

## Recommendations

<b>Subject</b>	Cork City PWS Lee Road Treatment Plant Audit Recommendations 18/09/2024	<b>Due Date</b>	18/11/2024
<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. Review procedures to ensure all failures of the drinking water standards are notified to the EPA and HSE without delay.</li><li>2. Review the communications procedure with ESB Networks to ensure that any discharges that may impact the raw water quality for the treatment plant are notified to Uisce Éireann.</li><li>3. Provide an update on the schedule of works to install the manganese treatment system.</li><li>4. Provide an update on the progress of works to install the alkalinity treatment system.</li><li>5. Assess the feasibility of installing a hydrocarbon monitor at the raw water intake with appropriate alarms and inhibits.</li><li>6. Ensure all expired calibration stickers are removed from monitors and the most recent stickers are clearly visible.</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 18/11/2024 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>		