

Site Visit Report

Under the *European Union (Drinking Water) Regulations 2014* as amended, 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	SRRWSS - Lisbrock
Organisation	Uisce Éireann
Scheme Code	2600PUB1022
County	Roscommon
Site Visit Reference No.	SV27504

Report Detail	
Issue Date	08/03/2023
Prepared By	Lorcan Farrell

Site Visit Detail			
Date Of Inspection	16/02/2023	Announced	Yes
Time In	10:00	Time Out	12:30
EPA Inspector(s)	Lorcan Farrell		
Additional Visitors			
Company Personnel	Uisce Éireann: Vincent McGrath Glan Agua: Tomasz Graszka, Shane O'Donnell, Ross Sullivan		

> Summary of Key Findings

(1) There are no plant shutdowns in place at Lisbrock Water Treatment Plant (WTP) based on high/low residual chlorine levels after chlorine dosing and there are no alarm/shutdowns in place based on verified residual chlorine levels after contact time has been achieved.

(2) While there are plant shutdown setpoints in place for critical treatment processes, there is an absence of warning alarm setpoints on these processes to alert operators to deteriorating water quality or the failure of critical treatment processes before a plant shutdown occurs.

> Introduction

South Roscommon Regional Water Supply Scheme - Lisbrock serves a population of 5,983 people (EDEN figures) and the treatment plant produces approximately 2800 m³/day depending on demand. The treatment plant is operated by Glan Agua and sources its water from six boreholes with treatment of the combined water from all boreholes consisting of coagulation, adsorption clarification, filtration, UV disinfection, chlorination and fluoridation. The treated water is pumped from the treatment plant to Feamore Reservoir which is operated by Roscommon County Council.

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.

> Supply Zones Areas Inspected

The audit included a site tour of Lisbrock WTP.



1. Alarms, Inhibits & Oversight Audits 2023

		Answer
1.1	Were online monitors operational?	No
Comment		
<p>(1) The final water colour monitor was not reading accurately. Glan Agua were aware of the issue and works are ongoing to return the monitor to full operation.</p>		

		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		
<p>(1) There are plant shutdown setpoints in place at the treatment plant for critical treatment processes including final water turbidity, pH, UVT, UV dose, colour and aluminium residual. When a shutdown set point is reached, the plant shuts down to prevent inadequately treated water leaving the plant and an alarm is generated to notify the caretaker that a shutdown has occurred. While these shutdown setpoints prevent inadequately treated water from leaving the plant, the majority do not possess corresponding warning alarm levels at lower values that would alert the operator in the event of deteriorating water quality or the failure of a critical treatment process before a plant shutdown occurs.</p> <p>(2) The operator stated that the plant was to receive upgrades under a capital replacement fund. These upgrades are to include PLC automation and the inclusion of alarms to alert operators of deteriorating water quality or the failure of a critical treatment process. The upgrades are due to be completed by Q2 2023.</p>		

		Answer
1.3	Has UÉ carried out an alarm and inhibit review at the water treatment plant?	No
Comment		
<p>(1) An alarm and inhibit review has not been completed at Lisbrock WTP. It was stated by Uisce Éireann and the operator that an alarm and inhibit review could potentially be carried out to inform the works due to take place at the treatment plant under the capital replacement fund upgrades.</p>		

Answer

1.4	Are suitable plant shutdowns/inhibits in place to prevent the entry of inadequately treated water entering the distribution network?	No
Comment		
<p>(1) The treatment plant supplies water to Feamore reservoir which is operated by Roscommon County Council. There is a continuous residual chlorine monitor on the outlet of the reservoir which provides validation of chlorine contact time. The chlorine residual concentration from this monitor is available visually to the operator on the HMI at the treatment plant however, there are no automatic plant shutdown or warning alarm setpoints at the treatment plant based on the output of this residual chlorine monitor. Roscommon County Council monitors the residual chlorine levels at the reservoir and makes contact with the operator by phone should there be an issue or if chlorine dosing needs to be adjusted at the treatment plant.</p> <p>(2) While there are appropriate high/low warning alarms in place after chlorine dosing, there are no automatic plant shutdown setpoints in place at the treatment plant to prevent inadequately treated water reaching Feamore Reservoir.</p> <p>(3) A final water turbidity shutdown setpoint of 0.8 NTU was in place at the treatment plant and had a time delay of 10 minutes. This shutdown time delay is not in accordance with the three consecutive minutes time delay (at a turbidity in excess of 1NTU) as specified in Table 5.3 of the <i>EPA Water Treatment Manual: Filtration</i>. Operational staff changed the time delay from 10 minutes to the specified three minutes at the audit.</p>		

		Answer
1.5	Are there appropriate procedures covering verification of alarms and inhibits status following maintenance or other work on site?	No
Comment		
<p>(1) There are informal procedures covering verification of alarms and inhibits status following works carried out at the treatment plant however, there is no formal procedure or system in place such as a tag in/tag out system or alarm/shutdown testing following completion of works on-site.</p>		



2. Site Specific Issues

	Answer
2.1 Are treatment process chemicals appropriately managed and stored?	No
Comment	
(1) The fill point for the fluorosilicic acid bulk tank is located outside a bunded area.	

Recommendations

Subject	SRRWSS Lisbrock - Audit Recommendations	Due Date	10/04/2023
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. Ensure that: (i) appropriate alarms/shutdowns are in place on verified chlorine residuals after contact time and (ii) appropriate high and low shutdown shutdown setpoints based on residual chlorine level post dosing are in place at the treatment plant.2. Ensure that appropriate alarms are in place at the treatment plant to alert operators of deteriorating water quality or the failure of a critical treatment process.3. Ensure that the treatment plant is prioritised under the Uisce Éireann Alarm and Inhibit Review Programme.4. Ensure that an appropriate procedure is in place covering verification of alarms/shutdowns status following maintenance or other works completed at the treatment plant.5. Ensure that the final water colour monitor is returned to full operation.6. Review chemical storage arrangements at the treatment plant. 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 10/04/2023 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>		