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	South Louth & East Meath
Organisation	Uisce Éireann
Scheme Code	2100PUB1019
County	Louth
Site Visit Reference No.	SV28127

Report Detail

Issue Date	15/09/2023
Prepared By	Lorcan Farrell

Site Visit Detail

Date Of Inspection	22/08/2023	**Announced**	No
Time In	10:30	**Time Out**	14:40
EPA Inspector(s)	Lorcan Farrell David O'Malley		
Additional Visitors			
Company Personnel	Uisce Éireann: Daniel Behan, Stephen Brennan, Pat Collins. Louth County Council (Working in partnership with Uisce Éireann): Patrick Callan, Peter Masterson, John McCooey, Salem Rifaie, Andrew Tuite.		

Summary of Key Findings

1. The UV disinfection system at Staleen Water Treatment Plant (WTP) was operated outside the standard protocol resulting in the loss of the UV protozoal barrier from 16/07/2023 to 15/08/2023.

2. Uisce Éireann stated that for the most part CFC/Filtration processes provided a protozoal barrier between 16/07/2023 to 15/08/2023.

3. The run to waste system in place at the treatment plant was not available for operation due to a malfunctioning run to waste valve.

Introduction

The South Louth East Meath (SLEM) Public Water Supply (PWS) serves a population of 69,271 people. Water is abstracted from the River Boyne and treated at Staleen Water Treatment Plant (WTP) which is one of the largest 26 water treatment plants in Ireland and produces between 29,000-31,000 m3/day. The treatment plant was recently upgraded with works being completed in 2020. Louth County Council took over operation of the treatment plant from the design, build and operator contractor in June 2022. Treatment at Staleen WTP includes pH adjustment, coagulation, flocculation and clarification (CFC), rapid gravity filtration followed by UV disinfection, chlorination and fluoridation.

The audit was undertaken as part of the EPA's ongoing assessment of the largest 26 water treatment plants, which together serve approximately 65% of public water supplied to consumers nationally.

Supply Zones Areas Inspected

The audit included a site tour of the treatment processes at Staleen WTP. The abstraction source and off-site treated water reservoirs were not visited as part of the audit.

1. Filtration

		Answer
1.1	Are the filters designed and managed in accordance with EPA guidance?	No

Comment

1. The run to waste system was not available for operation on the day of the audit due to recurring issues with the run to waste valve.

2. Louth County Council confirmed that operational checks outlined in Table 5.4 of the *EPA Water Treatment Manual: Filtration* are not all being completed regularly on the rapid gravity filters at the treatment plant.

2. Reservoirs and Distribution Networks

		Answer
2.1	Is treated water in tanks and reservoirs suitably protected against contamination?	No

Comment

1. Flexible plastic netting was in place covering the air vents on Clear Water Tank (CWT) Two. This does not provide adequate protection to prevent ingress of animals, deliberate introduction of contaminants or acts of vandalism.

3. Management and Control

		Answer
3.1	Is the plant suitably managed and controlled to maintain the designed log credit on each treatment stage?	No

Comment

1. The protozoal log treatment requirement at Staleen WTP has been confirmed via a source and sanitary survey completed in Q1 2023 as having a 3 log treatment requirement.

2. Adverse weather conditions in July 2023 led to a deterioration in raw water quality with low treated water UVT levels being experienced. This in turn led to the UV system being operated manually in a Duty/Assist format to cope with low treated water UVT levels. Uisce Éireann confirmed after the audit that the UV system was operating outside its validation envelope between 16/07/2023 and 15/08/2023 resulting in the loss of the UV protozoal barrier. The UV disinfection system was confirmed to be operating in the usual Duty/Standby format on the day of the audit.

3. The shutdown setpoints for flow, UVT, UV intensity or UV dose were not accessible on the UV system HMI on the day of the audit.

4. Uisce Éireann staff confirmed during the audit that protozoal log treatment credits were not claimed for the CFC/filtration processes at the treatment plant as the inhibits in place were considered to be inadequate. Uisce Éireann confirmed after the audit that while CFC/filtration processes at the treatment plant were able to maintain individual filter turbidity levels of less than 0.3 NTU for the majority of the time the UV disinfection system was operating outside of its validation envelope, there were periods of time between 16/07/2023 and 15/08/2023 that water from individual filters with turbidity in excess of the 0.3 NTU limit specified in the *EPA Treatment Manual: Filtration* entered supply.

		Answer
3.2	Is there a documented alarm response procedure?	Yes

Comment

1. A copy of the Uisce Éireann Incident Communications Response Guidance Form was present on the wall of the control room in the treatment plant which contained site specific trigger levels protecting critical plant processes at the treatment plant. The basis for low chlorine residual, chlorine contact time and filter turbidity trigger levels was unclear.

4. Site Specific Issues

		Answer
4.1	Were online monitors operational?	No

Comment

1. Louth County Council stated that the raw water ammonia monitor was experiencing reliability issues. Daily manual sampling is ongoing and plans are in place to review the current raw water ammonia monitor or replace it with a new instrument. No timeframes for the completion of works were available at the audit.

2. The fluoride residual monitor in place at the treatment plant was not operational. Daily manual sampling is ongoing and Louth County Council stated that the fluoride monitor is due to be replaced by Q3 2023.

		Answer
4.2	Is pest control appropriate at the water treatment plant?	No

Comment

1. Rodent bait boxes were observed along the external wall of the main building near the doors leading to reception. The use of rodenticides at the water treatment plant should be avoided unless absolutely necessary and in that case restricted to a limited use until the problem is brought under control.

		Answer
4.3	Were service/calibration interval stickers present on chemical dosing pumps?	No

Comment

1. Service/calibration stickers were missing from a number of chemical dosing pumps at the treatment plant. These included the aluminium sulphate, sulphuric acid, fluorosilicic acid and sodium hydroxide dosing pumps. Uisce Éireann confirmed after the audit that all chemical dosing pumps in operation at the treatment plant are within their service/calibration interval timeframe with the next service/calibration due in September 2023.

Recommendations

Subject	South Louth & East Meath (Staleen WTP) Audit Recommendations	**Due Date**	16/10/2023
Action Text	**Uisce Éireann is responsible for ensuring a clean and wholesome supply of drinking water and should implement the following recommendations without delay.** 1. Assess and confirm the protozoal log treatment barriers in place at Staleen Water Treatment Plant to ensure that a verified protozoal treatment barrier is in place at all times. This should include provision of appropriate alarms/inhibits to protect the treatment barriers in place at the treatment plant. 2. Submit alarm/shutdown setpoints (flow, UVT, minimum UV intensity/dose) protecting the treatment barrier provided by the UV disinfection system. 3. Return the run to waste system at the treatment plant to full operation. 4. Update the Uisce Éireann Incident Communications Response Guidance Form with the appropriate trigger levels that protect critical processes at the water treatment plant. 5. Repair/replace the raw water ammonia and treated water fluoride residual monitors at the treatment plant. 6. Review the use of rodenticide on-site. This should be avoided unless absolutely necessary and in that case restricted to a limited use until the problem is brought under control. Uisce Éireann should have regard to E*PA Advice Note No. 13: Pesticides in Drinking Water* in this review. 7. Affix service/calibration stickers with appropriate service interval dates to all chemical dosing pumps at the treatment plant. 8. Secure vents on clear water tanks against ingress of animals, deliberate introduction of any contaminant or acts of vandalism. **Actions required by Uisce Éireann** 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. Uisce Éireann should submit a report to the EPA on or before 16/10/2023 detailing the actions taken and planned, with timescales, to close out the above recommendations. The EPA advises that the findings and recommendations from this audit report should, where relevant, be addressed at other public water supplies.		