# 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

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| **Name of Installation** | Lough Easkey Regional Water Supply |
| **Organisation** | Uisce Éireann |
| **Scheme Code** | 2700PUB2704 |
| **County** | Sligo |
| **Site Visit Reference No.** | SV29565 |

## Report Detail

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| **Issue Date** | 01/07/2024 |
| **Prepared By** | Maria O'Connell |

## Site Visit Detail

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| **Date Of Inspection** | 24/04/2024 | **Announced** | Yes |
| **Time In** | 11:00 | **Time Out** | 12:40 |
| **EPA Inspector(s)**<br><br>**Additional Visitors** | Maria O'Connell | | |
| **Company Personnel** | Uisce Éireann: Fionnuala Bonner.<br>Sligo County Council (working in partnership with Uisce Éireann): James Melvin, Dessie Daly and Kevney. | | |

## Summary of Key Findings

1. The site operator confirmed that the contractor responsible for the SCADA system had been experiencing issues with communication signals at the plant and that they were due on site the week after the audit to address the issue.

2. The chlorine residual inhibit time delay was enabled at 1000 seconds which is not in alignment with the *EPA Water Treatment Manual: Disinfection.* The turbidity alarm time delays were not in accordance with the *EPA Water Treatment Manual: Filtration.*

3. There were no network monitoring results on residual chlorine for this supply as the site operator that monitoring is not conducted due to resource shortages.

## Introduction

Lough Easkey PWS serves a population of 6052. The raw water for this supply is abstracted from Lough Easkey and is gravity fed to the water treatment plant (a distance of 6km). The design capacity of the plant 4416m3/day and on average the plant produces 3251m3/day (24hours/7 days). Uisce Eireann confirmed that a source and sanitary survey was completed in 2020 and a 3 log protozoal treatment requirement has been assigned. Treatment consists of pH correction, coagulation, flocculation, clarification, rapid gravity filtration, disinfection via sodium hypochlorite, final pH correction and fluoridation. There are ten reservoirs on this supply and three auto scours have been installed on the network. The plant has recently had a significant upgrade to the sludge treatment works provided on site. This audit was undertaken to assess Uisce Eireann's performance in producing clean and wholesome water with a focus on the alarms, inhibits and the procedures in place at the water treatment plant to ensure appropriate oversight of treatment processes.

## Supply Zones Areas Inspected

The audit included a site tour of treatment processes at Lough Easkey WTP with site personnel.

## 1. Alarms, Inhibits & Oversight Audits 2024

| | | Answer |
|---|---|---|
| 1.1 | Is there a documented site specific incident response and incident escalation process? | Yes |

**Comment**

1. A documented site specific incident response and incident escalation process was available on site in the form of a drinking water incident response procedure (document reference of COO-AO-024-FM-01) (Rev 1.0). The effective date of this procedure was listed as 10/01/2024. This document was on display at the plant and the site operator confirmed that training had been provided on site specific incident response and escalation. Details regarding site specific contacts and setpoints were in place however the time delays were not detailed.

| | | 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. Turbidity alarms are in place on raw water, individual filters and final water at the plant. The raw water alarms were set as 0.5NTU (Hi Hi) and 1.20NTU (Hi). On review of preaudit information the individual filter alarms were set at 0.5NTU (Hi Hi) and 0.3 NTU (Hi). The onsite assessment highlighted that these alarms had been adjusted to 0.3NTU (Hi Hi) and 0.25NTU (Hi). The time delays on the individual filters and final water alarms were all set at 600 seconds. This is not in alignment with the *EPA Water Treatment Manual:Filtration* and was highlighted to the site operator who amended the settings on the final water time delay.

2. Filter backwashes are set on time only and backwashes occur at 10pm, 1am and 4am daily. Back washes are not linked to turbidity or head loss.

3. A low alarm for chlorine residual was set at 0.6mg/l however a shutdown is in place at 0.7mg/l which makes this alarm unnecessary.

| | | Answer |
|---|---|---|
| 1.3 | Has UÉ carried out an alarm and inhibit review at the water treatment plant? | No |

| | | 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 residual chlorine shutdown trigger of 0.7mg/l was enabled with a time delay of 1000 seconds this is not in aligned with the *EPA Water Treatment Manual: Disinfection.* Additionally the minimum free chlorine level according to to the chlorine contact time calculation submitted is 0.7mg/l so a value to protect the minimum free chlorine level required should be considered.

| | | Answer |
|---|---|---|
| 1.5 | Are plant performance trends accessible by operational staff at the water treatment plant? | Yes |

**Comment**

1. The site operator stated that the contractor who manages the county SCADA system (Cullys) had experienced issues due to signalling for 3G/4G/Sim and cloud based systems which is having an impact on the trends on the SCADA system and therefore trends could not be submitted prior to the audit.

2.The site operator also confirmed that this issue continued at the time of audit and advised that the contractor was due at the site the week after the audit to address the issue.

3. The site operator outlined that plant inhibits are unaffected by the issue as shutdown setpoints being controlled locally at the treatment plant before an alarm is generated and sent to the county SCADA system. Alarms generated at the treatment plant are still issued to operational staff.

4.. A review of plant trends for turbidity and residual chlorine for the week prior to the audit highlighted the levels below. The site operator outlined that a contractor was conducting calibration and serving requirements on site on this date. (i) Turbidity: maximum final water reading was 0.15NTU (18/04/2024) and minimum reading 0.07NTU (18/04/2024) (ii) Chlorine residuals: maximum final water was 1.44mg/l (18/04/2024) and minimum reading was 0.86 mg/l (18/04/2024)

| | | Answer |
|---|---|---|
| 1.6 | Is there a documented alarm response procedure? | No |

**Comment**

1. While there is not a written alarm response procedure apart from the drinking water incident response procedure. It was noted that the caretaker maintains a specific written record of alarm responses on site (since 2023) detailing the following: date and time of alarm, type of alarm,line manager informed, contractor dispatched, comments (covering actions taken to resolve the issue) and caretakers signature. This document is separate to the daily records retained in the caretakers diary. This is good practice and should be continued.

## 2. Site Specific Issues

| | | Answer |
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| 2.1 | Is there a suitable monitoring frequency for residual chlorine in the network with records available? | No |

**Comment**

1. The site operator outlined that no residual chlorine monitoring occurs on this public water supply due to resource issues.

## Recommendations

| Subject | Lough Easkey OEE Audit 2024 | Due Date | 08/08/2024 |
|---|---|---|---|
| **Action Text** | **Uisce Éireann is responsible for ensuring a clean and wholesome supply of drinking water and should implement the following recommendations without delay.**<br><br>1. Assess and resolve the issues being experienced with the SCADA system to ensure that treatment plant process trends are recorded at all times. Provide details as regards the extact nature of the issue experienced and the measures taken to resolve the issue.<br>2. Conduct an alarm and inhibit review at this water treatment plant and implement the findings to ensure the quality of drinking water is protected at all times. Amend and confirm when the time delays on the chlorine residual shutdown have been brought into alignment with the *EPA Water Treatment Manual: Disinfection* and the turbidity alarm time settings into alignment with the *EPA Water Treatment Manual: Filtration.*<br>3. Ensure the monitoring of residual chlorine is undertaken several times a week at different points of the network to include network extremities, ensuring chlorine is >0.1 mg/l in the network. Submit a record of sampling results for June 2024.<br>4. Ensure that (i) the incident response procedure displayed at the water treatment plant contains time delays for site specific trigger levels protecting critical processes at the WTP (ii) there is a documented alarm response procedure in place and continue to maintain the written record of alarm responses as part of the procedure (iii) that a cascade system is in place for responding to alarms generated at the plant which allows for verification that alarms have been responded to effectively.<br><br>**Actions required by Uisce Éireann**<br><br>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.<br><br>Uisce Éireann should submit a report to the EPA on or before 08/08/2024 detailing the actions taken and planned, with timescales, to close out the above recommendations.<br><br>The EPA advises that the findings and recommendations from this audit report should, where relevant, be addressed at other public water supplies. | | |