

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	East Waterford Water Supply Scheme
Organisation	Uisce Éireann
Scheme Code	3800PUB1110
County	Waterford
Site Visit Reference No.	SV27964

Report Detail	
Issue Date	12/07/2023
Prepared By	Regina Campbell

Site Visit Detail			
Date Of Inspection	14/06/2023	Announced	No
Time In	11:00	Time Out	13:50
EPA Inspector(s)	Regina Campbell Paul Buckley		
Additional Visitors			
Company Personnel	Uisce Éireann: Ronan Walsh, Samantha Keane, Declan Halpin. Waterford City and County Council (working in partnership with Uisce Éireann): Andrew Kennedy, Michael Quinn.		

> Summary of Key Findings

1. There was a chemical spill at Adamstown Water Treatment Plant from 11/06/23 to 12/06/23 which resulted in approximately 30,000 L of aluminium sulphate discharging from a tank into an interceptor drain which flows into Whelansbridge River at a point approximately 2 km from the plant.
2. Uisce Éireann notified Inland Fisheries Ireland of the spillage and the Inland Fisheries Ireland is conducting an investigation into the incident.
3. On the day of the audit it was not yet clear exactly where the failure in the aluminium sulphate tank and associated pipework occurred which resulted in the discharge. Investigations were beginning in order to identify the exact cause and what corrective actions can be put in place to prevent similar incidents occurring.
4. The drinking water quality entering the East Waterford Public Water Supply was not affected as there was sufficient aluminium sulphate in the day tanks to allow normal water production operations to continue unaffected. However it was found that the online turbidity monitors were not operational due to instrumentation issues on the outlet of Filters 3 and 4 which means that the protozoal barrier could not be verified. Uisce Eireann were unable to provide a timeline for when the turbidity monitors would return to operation.

> Introduction

Adamstown Water Treatment Plant (WTP) produces 26,931 m³/day of water serving a population of 62,752 (EPA EDEN figures).

The sources of the supply are the Ballyshunnock impoundment, River Clodiagh and River Mahon with relative proportions of each source varying throughout the year.

Treatment includes coagulation, clarification, rapid gravity filtration, fluoridation, chlorination and final pH correction.

The audit was carried out in response to Uisce Éireann's notification to the EPA of a chemical spill at the plant which occurred from 11/06/23 to 12/06/23.

> Supply Zones Areas Inspected

The inspection focused on chemical storage facilities and drinking water quality trends at the time of the incident.



1. Incident Management

1.1

	Answer
Was the incident suitably alerted to the plant operators, escalated and managed in order to maintain water quality and protect public health?	Yes
<p>Comment</p> <p>Uisce Éireann notified the EPA on 13/06/23 of a chemical spill which occurred at the Adamstown Water Treatment Plant (WTP) during the 11/06/23 and 12/06/23. Inland Fisheries Ireland were notified on the evening of 12/06/23 and are conducting their own investigation.</p> <p>The details provided by Uisce Éireann said that approximately 30,000 L of aluminium sulphate discharged from a large storage tank into Whelansbridge River via the WTP interceptor drainage system. The issue was raised by operational personnel at approximately 4pm on 12/06/2023 when a visual inspection of Tank 2 found that the level of aluminium sulphate had dropped suddenly following which investigations began.</p> <p>The bulk aluminium sulphate storage tank is comprised of two side by side discrete cells (Tank 1 and Tank 2) that are constructed of concrete with an inner lining. The tanks are partially below ground level. The above ground part of the tank is roofed and locked with protective mesh around it. The bulk tanks pump to the day tank. The tanks were constructed in the early 1980's.</p> <p>Upon review of tank level trends from the onsite monitoring system it was identified that the discharge occurred from Tank 2 between 9am on 11/06/23 and 5pm on 12/06/23. The tank did not discharge completely and some liquid was still visible in Tank 2. There is no low level alarm in place for the tanks.</p> <p>An inspection of a scour valve chamber which is adjacent to the aluminium storage tanks was undertaken by Wateford City and County Council (WCCC) personnel at about 4 to 4.30pm on 12/06/23 and nothing obvious was noted except for a slight drip from the valve.</p> <p>The scour valve chamber discharges to the interceptor drain which in turn discharges to the Whelansbridge river at a distance of about 2km from the WTP. The interceptor drain also collects backwash water and rainwater. Inspections of the discharge point into the river were undertaken by WCCC staff at about 5.00pm on 12/06/23 and evidence of a cloudy discharge and a small number of dead fish were observed. WCCC then contacted Inland Fisheries Ireland. Investigative samples upstream, at the point of discharge and downstream of the point of discharge were taken on the evening of the 12/06/2023 by WCCC staff. Further samples were taken on 13/06/2023. Results of sampling were not available at the audit and have not been provided to the EPA to date.</p> <p>WCCC personnel said that they were not aware if integrity testing had taken place on the aluminium sulphate tanks or associated pipework in the past.</p> <p>Following the incident, an emergency bung was placed in the scour valve chamber to prevent any further discharges entering the interceptor drain and ongoing checks of the liquid level in both aluminium sulphate tanks was taking place.</p> <p>Uisce Éireann said that contractors would begin investigations into the both tanks and associated pipework in the following days. Works planned included draindown of the remaining contents of Tank 2 followed by full inspection and integrity testing in order to fully establish how the discharge to the interceptor drain occurred and what corrective actions should be put in place to prevent similar incidents occurring.</p> <p>Trends viewed confirmed that the incident did not have any effect on the quality of drinking water entering the supply.</p>	



2. Filtration

2.1

	Answer
Are the filters designed and managed in accordance with EPA guidance?	No
Comment	
<p>There are eight rapid gravity filters at the plant. Filters 1 and 2 are not operational at present and are undergoing refurbishment works.</p> <p>The turbidity monitors on the outlets of Filters 3 and 4 were not operational at the audit due to instrumentation issues with the monitors which were affecting readings. The lack of online turbidity monitoring with appropriate alarms and inhibits for each filter means that the protozoal barrier cannot be verified at the plant. No timeline for fixing or replacement of the monitors was available at the audit.</p> <p>Turbidity readings on filters 5 to 8 and on the combined filtered water were satisfactory. Turbidity trends (as well as residual chlorine trends) viewed for the week of the alum spillage were also satisfactory indicating that normal water productions were unaffected by the alum spillage.</p>	



3. Treatment Process Chemicals

		Answer
3.1	Are treatment process chemicals appropriately managed and stored?	No
Comment		
<p>The fill-points of the new sodium hydroxide tanks were not enclosed in order to prevent spillages entering the interceptor drain. WCCC said that there are procedures in place for chemical deliveries and that the procedures require that valves are closed off during chemical filling of tanks to ensure that no spillages can enter the surface water drainage system.</p>		



4. Management and Control

4.1

	Answer
Have the recommendations from the previous EPA audit been satisfactorily addressed?	No
Comment	
<p>A number of recommendations from the previous EPA audit undertaken on 28/09/21 have not been completed to date. The outstanding recommendations are as follows:</p> <p><i>No. 1: Uisce Éireann should confirm the log treatment for the plant and how any log deficit will be addressed.</i></p> <p>Update: Uisce Éireann have not provided a timeframe for completion of this recommendation.</p> <p><i>No. 7: Increase media depth to 1000mm in accordance with the EPA Water Treatment Manual: Filtration.</i></p> <p>Update: Uisce Éireann said in correspondence submitted on 31/03/23 that the completion date for works on filters 1 to 4 is Q2 2028.</p> <p><i>No. 9: Uisce Éireann should review chemical dosing arrangements in the lime dosing room.</i></p> <p>Update: The audit found that an upgrade of the lime dosing room was nearly completed. Uisce Éireann could not confirm when final commissioning of the new dosing arrangements would be undertaken.</p> <p><i>No. 10: Uisce Éireann should submit the programme of works (including timeframes) for the orthophosphate dosing project.</i></p> <p>Update: Despite orthophosphate dosing infrastructure and chemicals being in place at the plant, dosing has not commenced yet.</p>	



5. Site Specific Issues

		Answer
5.1	Is backwash water suitably managed at the plant?	No
Comment		
Backwash water is discharged directly into the interceptor drain and does not undergo any settlement process to facilitate the thickening of solids.		

		Answer
5.2	Is there a monitoring programme in place for Whelansbridge River?	No
Comment		
According to WCCC personnel, there is no current monitoring programme of the Whelansbridge River upstream and downstream of the discharge point.		

Recommendations

Subject	East Waterford Recommendations	Due Date	12/08/2023
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> <p>Recommendations:</p> <ol style="list-style-type: none"> 1. a) Submit the findings of the investigation into the cause of the chemical leakage from the aluminium sulphate bulk storage tank and how it entered the interceptor drainage system and b) Put in place corrective actions to ensure that a similar incident does not occur. 2. Upgrade the bulk aluminium sulphate storage tanks so that they are stored in a bunded area capable of containing at least 110% of the volume of chemicals stored therein. Fill points for storage tanks inside the bunds should be within the bunded area. Refer to EPA guidance document –“<i>IPC Guidance Note on Storage and Transfer of Materials for Scheduled Activities</i>”. 3. Ensure that the fill points are enclosed on the new sodium hydroxide tanks to ensure spills are captured and do not enter the drainage system. 4. Ensure that staff undergo regular refresher training in relation to chemical use and management on - site. Operators should be trained to promptly report any unusual changes in levels of chemicals in tanks. 5. Submit the monitoring results of sampling undertaken in response to the incident at Whelansbridge River. Include a full interpretation of results and findings of the impact of the chemical discharge on the River. 6. Put in place a monitoring programme of the Whelansbridge River in order to assess the impact of any discharges from the plant on the river water quality. 7. Ensure backwash water undergoes appropriate settlement and that the discharge of backwash water does not have a deleterious impact on the receiving waters. 8. Confirm the log treatment requirement for the plant and address how any treatment log deficit will be addressed. 9. a) Notify the HSE that the protozoal barrier cannot be verified; b) Ensure that the turbidity monitors on the outlets of Filters 3 and 4 are operational with appropriate alarms and inhibits in place in accordance with the EPA Water Treatment Manual: Filtration; c) Confirm when Filters 1 and 2 are back in operation; d) Continue to monitor for <i>Cryptosporidium</i> as per Uisce Éireann’s Rationale for Determining the Frequency of <i>Cryptosporidium</i> monitoring in Public Water Supplies; e) Ensure that filter media depth is 1000mm in accordance with the EPA Water Treatment Manual: Filtration. 10. a) Commission the upgraded lime dosing room and b) Commence orthophosphate dosing at the plant. <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 12/08/23 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>		