

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	Rosses Regional PUB
Organisation	Uisce Éireann
Scheme Code	0600PUB1060
County	Donegal
Site Visit Reference No.	SV27533

Report Detail	
Issue Date	07/03/2023
Prepared By	Ruth Barrington

Site Visit Detail			
Date Of Inspection	22/02/2023	Announced	Yes
Time In	10:30	Time Out	13:30
EPA Inspector(s)	Ruth Barrington		
Additional Visitors			
Company Personnel	Uisce Éireann: Fionnuala Bonner Donegal County Council (working in partnership with Uisce Éireann): John V O'Donnell, Damien O'Sullivan, Paul McCloskey, Eoin Kerrane		

> Summary of Key Findings

1. The upgrade of the Crollly WTP improves the treatment available for the Rosses Regional Supply. Uisce Éireann should prioritise the items remaining on the post-upgrade snag list for completion, including those in the Recommendations section of this report.
2. The upgrades to Crollly WTP are not linked to the county wide SCADA. Uisce Éireann should improve the oversight of WTP operations by linking all processes to the county wide SCADA, and in the interim should provide supervisory access to the local SCADA.

> Introduction

Rosses Regional Public Water Supply (PWS) serves a population of 9,484 people with raw water abstracted from Lough Keel and treated at Crollly Water Treatment Plant (WTP). The treatment plant was recently upgraded by Uisce Éireann with works completed in 2022 and includes coagulation, flocculation and clarification, rapid gravity filtration and disinfection using sodium hypochlorite. The Rosses Regional PWS was subject to a Boil Water Notice between 15/12/2022 and 22/12/2022 following the impact of freezing temperatures on treatment processes at the WTP.

> Supply Zones Areas Inspected

The audit was carried out at the Crollly Water Treatment Plant and focused on the treatment processes, controls and chemical storage.



1. Coagulation Flocculation and Clarification (CFC) Stage

		Answer
1.1	Is the CFC process optimised to respond to changes in raw water quality?	No
Comment		
<p>1. The chemical dose control at Crollly WTP has been upgraded with the addition of streaming current monitor to improve the responsiveness of coagulation processes during changeable raw water conditions. Flocculation has also been improved to give additional contact time before settlement.</p> <p>2. The source water has low alkalinity and pH adjustment is required to attain coagulation pH.</p> <p>3. As part of the upgrade, the existing soda ash pH adjustment was switched to caustic soda, due to manual handling health and safety concerns over the use of heavy bags of soda ash. However, the caustic soda does not perform so well with the low alkalinity of the source water from Lough Keel, and this results in difficulties with the coagulation process during changing raw water temperature and alkalinity conditions.</p> <p>3. Uisce Éireann is considering the re-introduction of soda ash to optimise the CFC processes and improve alkalinity responsiveness, with the possibility of installing a bulk silo to remove the manual handling requirement.</p> <p>4. Coagulation pH alarm and inhibit set points may give too broad a pH range and the 20 minute time delay setting may be excessive for this WTP. Operational staff mentioned that the sludge blanket could be affected in less than 20 minutes at an out of specification pH value.</p> <p>5. The coagulation pH time delay setting was also highlighted in Uisce Éireann's Alarm and Inhibit Review carried out during 2022. A review of the settings should consider whether set point values give adequate response time and inhibit based on changing conditions.</p>		

		Answer
1.2	Were the CFC tanks, channels and weirs observed to be clean, level and well maintained during the audit?	No
Comment		
<p>1. Corners of the flocculation tank had a build up of material, despite a cleaning programme in place.</p> <p>2. Tube settlers were installed as part of the upgrade to improve the clarification process and appeared in good condition.</p> <p>3. The clarifier channels were observed to not be level and receiving variable water flows across each channel. Staff described the channels as not within the scope of the WTP upgrade.</p>		



2. Treatment Process Chemicals

2.1

	Answer
Are treatment process chemicals appropriately managed and stored?	No
Comment <p>1. New indoor bulk storage of treatment chemicals was provided as part of the upgrade, including new bunded tanks, fill lines and pipework. A number of issues were noted with the new infrastructure. (i) Flexible and plastic pipes leading out of the bunds on alum and sodium hydroxide bulk tanks, where the pipes could be damaged or pose a trip hazard. (ii) The alum tank fill point was at an awkward angle beyond the roller shutter access door. (iii) Leaks on dose pipework were observed at several locations within the dose pump kiosks for sodium hydroxide and sodium hypochlorite. (iv) Some of the pipelines between bulk tanks and dose pumps were unlabelled; (v) Marks of previous spills were visible around the alum and caustic bulk tanks.</p> <p>2. Donegal County Council staff confirmed that all these items were on a snag list arising out of completion of the upgrade works, but that there was no confirmed timescale to address the snag list.</p> <p>3. The old outdoor alum bund was still in place although the tanks have been removed. The bund was accumulating rainwater and debris and should be decommissioned if not intended for future use.</p>	



3. Management and Control

		Answer
3.1	Are instrument calibrations within date?	Yes
Comment		
1. The calibrations of monitoring equipment inspected during the audit were within date. However, the final water pH and UVT continuous monitors were not holding calibration and online results did not match the comparative daily manual test results. This should be further investigated under the maintenance contract.		

		Answer
3.2	Is the data obtained from sampling and monitoring used to actively inform the processes on site and in the distribution network?	Yes
Comment		
1. Plant operators have full access to local SCADA on-site and remotely via tablet. The upgrades to treatment have not been linked to the county wide SCADA and so there is a shortfall in remote supervisory access to the full range of treatment processes and trends for Crolla WTP.		

Recommendations

Subject	Rosses Regional Audit 22/02/2023	Due Date	07/04/2023
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. Complete the snag list items outstanding on the Crolly WTP upgrade, addressing the leaks, pipework layout, chemical storage fill points and labelling of pipework.2. Progress the proposed upgrade works on optimisation of coagulation pH and alkalinity control.3. Provide SCADA access including visibility of the upgraded treatment processes to supervisory staff to support oversight of treatment processes.4. Undertake works to level the clarifier channels and maintain an even flow into channels.5. Carry out site maintenance work to clean the flocculation tank and prevent build up of rainwater and debris in the old alum bund.6. Review (i) alarm, inhibit and time delay settings for coagulation pH to ensure they are suitable to protect treatment processes; (ii) calibration of the final water pH and UVT monitors to ensure readings are accurate. <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 07/04/2023 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>		