

Site Visit Report

Under the European Union (Drinking Water) Regulations 2014 as amended, the Environmental Protection Agency is the supervisory authority in relation to Irish Water and its role in the provision of public water supplies. This Audit was carried out to assess the performance of Irish Water in providing clean and wholesome water to the visited public supply.

The audit process is a sample on a given date of the facility's operation. Where a finding against a particular issue has been reported this should not be construed to mean that this issue is fully addressed.

Water Supply Zone	
Name of Installation	Gort
Organisation	Irish Water
Scheme Code	1200PUB1022
County	Galway
Site Visit Reference No.	SV25377

Report Detail	
Issue Date	01/04/2022
Prepared By	Ruth Barrington

Site Visit Detail			
Date Of Inspection	04/03/2022	Announced	Yes
Time In	10:00	Time Out	12:00
EPA Inspector(s)	Ruth Barrington Michelle Minihan		
Additional Visitors			
Company Personnel	Irish Water: Pat O'Sullivan, Eoin Hughes Galway County Council (working under Service Level Agreement to Irish Water): Eithne Murphy, Tara Meehan, Adrian Raftery, Denis Biggins, Tony Kelly		

> Summary of Key Findings

1. The Boil Water Notice affecting 2,638 people has been in place at Gort Public Water Supply since 02/02/2022 and is likely to remain until the WTP is back in full production. Despite being categorised as emergency works, Filter 1 remained out of service on the day of the audit. An estimate of 4-6 weeks for the works to take place, once a Purchase Order is issued, was provided by Irish Water during the audit. Further work will then be required on Filter 2, with an unknown timescale depending on the extent of work needed.
2. The incident at Filter 1 involved the filter air diffuser heads detaching from the pipework which then impacted on the filter media. The Rapid Gravity Filters had been upgraded recently under an Irish Water programme completed in July 2021. At the time of the audit Filter 1 remained out of operation and was stripped down to the pipework. As a consequence the WTP was operating at half capacity, with water being tankered from Athenry PWS to meet demand.
3. Automatic shutdowns on final water turbidity were not activated on handover of the upgrade in July 2021. The incident of detached nozzles at Filter 1 was identified by Galway County Council operational staff whose vigilance was key in allowing a Boil Water Notice to be placed in a timely way to protect public health.

> Introduction

The Gort Water Treatment Plant (WTP) serves a population of 2,638 people on the Gort Public Water Supply (PWS). Water is abstracted mainly from Gort River, supplemented with water from two boreholes. The supply has been on a Boil Water Notice (BWN) since 02/02/2022 following an incident where the filter nozzles in Rapid Gravity Filter No. 1 detached from the filter pipework. Since the incident the WTP has operated at half capacity using Filter No. 2, with additional water brought in by tanker from Athenry Public Water Supply. Filter No. 1 remained out of service and awaiting repair works at the time of the audit.

> Supply Zones Areas Inspected

The audit was carried out on-site at Gort Water Treatment Plant and focused on the rapid gravity filters and the measures being taken by Irish Water and Galway County Council to restore the WTP to full capacity.



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
Comment	
<p>1. Site operators responded to high final water turbidity text alarms on 01/02/2022 and remained at the WTP to supervise backwashing until the early hours of 02/02/2022 when Filter 1 returned to operation.</p> <p>2. When the operator returned to the WTP during working hours on 02/02/2022, he found Filter 1 had backwashed again at approx. 04:30 but had not emptied. As the caretaker manually ran the Filter to waste, he noted diffuser nozzle heads floating in the tank and that the filter sand was banked up against the sides of the tank. The filter was isolated by the caretaker and maintenance contractors were called out.</p> <p>3. Filter 2 continued in service that day, with the WTP running at 40 m3/hr. However at 14:55 final water turbidity rose to over 1 NTU and Galway County Council staff manually shut down the WTP. The rising turbidity was caused as it was not possible to backwash Filter 2 on schedule.</p> <p>4. The Boil Water Notice was placed on the supply at 17:15 on 02/02/2022 and the WTP was returned to service on 03/02/2022 at a capacity of 50-55 m3/hr. The production at the WTP is now supplemented by tankers of treated water from Athenry Public Water Supply arriving every 90 minutes for 12 hours each day.</p> <p>5. Tankers are also provided at two locations in the town as alternative water supply. Consumers are advised to boil the water taken from these tankers.</p> <p>6. The WTP alarms and prompt operator response prevented inadequately treated water entering the distribution network. However, it emerged during the audit that automatic shutdowns were not enabled at Gort Water Treatment Plant since an upgrade of the WTP in July 2021. This is why a manual shutdown had to be performed by Galway County Council staff in response to rising turbidity over 1 NTU in the afternoon of 02/02/2022.</p>	



2. Filtration

2.1

	Answer
Was there visual indication that the filters were operating appropriately?	No
Comment	
<p>1. Filter 1 was not in operation at the time of the audit. The filter had been stripped down to the base pipework following the incident, and was awaiting repairs.</p> <p>2. Both Rapid Gravity Filters (Nos. 1 and 2) at Gort Water Treatment Plant were recently upgraded with works completed under an Irish Water programme in July 2021. Following the incident of filter air diffuser nozzles detaching on 02/02/2022, Irish Water and Galway County Council discovered that the nozzles had been fixed in place with adhesive rather than bolts. The correct fixings for these nozzles depends on the supplied brand and it appears that adhesive was not appropriate for these particular air diffuser nozzles.</p>	



3. Management and Control

		Answer
3.1	Is the water treatment plant resilient enough to cope with significant variations in raw water quality or demand?	No
Comment		
<p>1. Progress on building a new treated water reservoir was noted during the audit. The reservoir is due for completion in May 2022 and will have capacity for approx. 24 hours storage. Currently the only capacity for treated water at the WTP is a small clearwater tank. The new reservoir will add to the resilience of the Gort Public Water Supply, allowing time to respond to operational or maintenance issues as they occur while reducing the risk of water outages.</p>		

		Answer
3.2	Are suitable plant shutdowns/inhibits in place to prevent the entry of inadequately treated water entering the distribution network?	No
Comment		
<p>1. An upgrade of Gort Water Treatment Plant was carried out under an Irish Water Programme completed in July 2021. As part of the upgrade, process alarm settings and shutdown criteria were defined. During the audit, it emerged that automatic shutdowns on final water turbidity were not enabled. It appears that the facility for automatic shutdown was not enabled as part of the handover of the upgrade. Operational staff did not have access to the alarm or shutdown settings.</p> <p>2. Automatic shutdowns remained deactivated during the audit, as the Boil Water Notice is in place. The set-points had been reviewed since the incident, but full testing will be required following the completion of work on the Rapid Gravity Filters.</p>		

		Answer
3.3	Is the data obtained from sampling and monitoring used to actively inform the processes on site and in the distribution network?	No
Comment		
<p>1. Trends for final water turbidity were viewed on the HMI screen during the audit. The default view on the screen is zoomed out so the fine detail of turbidity is difficult to determine. Site staff do not have the system permissions to zoom in on this detail and to see changes in turbidity trends at a glance. In addition, Galway County Council staff mentioned problems with the scaling of graphs on the countywide SCADA system, as the signal to SCADA is not appropriate since the upgrade of systems at Gort WTP. These are key tools which should be readily available for plant operators to assist in the management of water treatment plant processes.</p>		

Recommendations

Subject	Gort PWS Audit Recommendations	Due Date	29/04/2022
Action Text	<p>Recommendations</p> <p>Irish Water is responsible for providing a safe and secure supply of drinking water. To address the issues described in this report, Irish Water should implement the following recommendations without delay.</p> <ol style="list-style-type: none">1. Irish Water should prioritise the completion of the work required on the Rapid Gravity Filters to provide full treatment capacity at the Gort Water Treatment Plant, and to improve the safety and security of the supply to allow the Boil Water Notice to be lifted.2. Irish Water should ensure that on completion of works at the filters, all critical process control alarm settings and plant shutdowns are reviewed, fully enabled on all relevant systems and tested to verify their correct operation.3. Irish Water should ensure that suitable tools and systems are available and accessible to plant operators via SCADA and HMI to manage water treatment plant processes and to identify key process changes, maximising the use of the continuous monitoring in place.4. Irish Water should carry out an assessment of works carried out on rapid gravity filters within the same timeframe as the Gort WTP contract, to determine whether there is a risk of the incorrect fitting of filter air diffuser nozzles being replicated elsewhere. <p>Follow-Up Actions required by Irish Water</p> <p>During the audit, Irish Water representatives were advised of the audit findings and that action must be taken as a priority by Irish Water to address the issues raised.</p> <p>This report has been reviewed and approved by Michelle Minihan, Drinking Water Senior Inspector.</p> <p>Irish Water should submit a report to the Agency on or before 29/04/2022 detailing how it has dealt with the issues of concern identified during this audit.</p> <p>The report should include details on the action taken and planned to address the various recommendations, including time frame for commencement and completion of any planned work.</p> <p>The EPA also advises that the findings and recommendations from this audit report should, where relevant, be addressed at all other treatment plants operated and managed by Irish Water.</p>		