



Drinking Water Audit Report

County:	Wexford	Date of Audit:	20/03/2019
Plant(s) visited:	Clonroche WTP Scheme code: 3300PUB1452	Date of issue of Audit Report:	17/04/2019
		File Reference:	DW2018/62
		Auditors:	Ruth Barrington Daryl Gunning
Audit Criteria:	<ul style="list-style-type: none"> • The <i>European Union (Drinking Water) Regulations 2014 (S.I. 122 of 2014)</i>, as amended. • The <i>EPA Handbook on the Implementation of the Regulations for Water Services Authorities for Public Water Supplies (ISBN: 978-1-84095-349-7)</i> • EPA Drinking Water Advice Notes No.s 1 to 15. 		

MAIN FINDINGS

- i. The source of the pesticide (Bentazone) exceedances in Clonroche public water supply remained unknown at the time of the audit. Irish Water has since informed the EPA in the response to the Regulation 16(1) Direction issued by the EPA that public consultation will continue in relation to pesticide exceedances at the Clonroche public water supply.
- ii. The disinfection system upgrade including alarms, controls and shutdowns has not yet been fully commissioned. During the audit, trend data indicated low chlorine residual in treated water, however the alarm did not dial out to operators as expected. Irish Water should ensure that alarm control, settings and dial outs are commissioned without delay to ensure adequately disinfected water entering the network.

1. INTRODUCTION

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 in response to the notification by Irish Water of persistent failures to meet the pesticide (Bentazone) parametric value in the Clonroche Public Water Supply (PWS), and as part of the EPA enforcement action on these failures which also include a Regulation 16(1) Direction issued on 21/12/2018 and the addition of Clonroche PWS to the EPA's Remedial Action List.

Water treated at Clonroche water treatment plant (WTP) is sourced from groundwater via two boreholes and serves a population of 588 (approximately 280m³ / day). Water treatment consists of disinfection by chlorination and pH correction. Treated water is stored in a reservoir which provides approximately half a day's supply.

The opening meeting commenced at 11:10 at Clonroche WTP. The scope and purpose of the audit were outlined at the opening meeting. The audit process consisted of interviews with staff, review of records

and observations made during an inspection of the treatment plant. The audits observations and recommendations are listed in Section 2 and 4 of this report.

The following were in attendance during the audit.

Representing Irish Water:

Colin Cunningham, Water Engineer

Patrick Duggan, Irish Water Compliance Specialist

Siobhan Clifford, Irish Water Compliance Monitor Liaison Analyst

Representing Department of Agriculture, Food, and the Marine:

James Caplis, Enforcement Officer, Pesticides Control Division

Representing Wexford County Council:

Oliver Bennett, Plant Caretaker

Dan McCartan, Senior Executive Engineer

Nicholas Rossiter, Senior Engineer

Paul Delahunty, Compliance Engineer

Representing the Environmental Protection Agency:

Ruth Barrington, Drinking Water Inspector

Daryl Gunning, Drinking Water Inspector

2. AUDIT OBSERVATIONS

The audit process is a random sample on a particular day of a facility's operation. Where an observation or recommendation against a particular issue has not been reported, this should not be construed to mean that this issue is fully addressed.

1.	<p>Source Protection</p> <ul style="list-style-type: none"> a. Both on-site boreholes were adequately capped and located in lockable chambers. No ingress of surface water into the chambers was evident. b. Both boreholes have been in place since 1978. Borehole 1 is the main borehole in use, with borehole 2 used as a standby. The abstraction rate is approximately 280m³ / day.
2.	<p>Disinfection Programme Upgrade</p> <ul style="list-style-type: none"> a. Chlorine dosing is flow proportional with residual trimming for chlorine control, via two chlorine pumps. b. Automatic switchover occurs after 10 hours and if the duty pump fails. c. There is no contact tank on site. Contact time is achieved within the rising main and reservoir, and chlorine residual is measured on the reservoir outlet. There are no connections prior to the reservoir. d. New duty and standby pumps were installed, and the control systems upgraded in November 2018, however the system has not been fully process proved or signed off by Irish Water and the contractor. e. Training on elements of the disinfection control system has not yet been carried out to allow the operator access to the range of functions provided by updated control panels and

	<p>trend accessibility.</p> <p>f. Warning and shut down alarms with a dial out facility to operators in a cascade system are programmed in the event of low chlorine residual via the upgraded disinfection controls. At the time of the audit, there was a 15 minute system delay for the low chlorine alarm and plant shutdown. It was the auditors' opinion that this period is too long, typically the holdover time would be 3-5 minutes</p> <p>a. During the audit, problems occurred with the chlorination control system as follows.</p> <ol style="list-style-type: none"> According to the control panels, a dip in the residual chlorine trend, below the warning alarm level, occurred at the plant at 11.00 a.m. on the day of the audit. At 12:06, the control system indicated a plant shutdown based on low chlorine residual, however, no alarms were generated to the operators or to SCADA, nor did the shutdown activate. At the same time, the control panel indicated zero flow out of the reservoir, despite staff confidence that this would not be the case. Chlorine pump no. 1 remained in operation after the low chlorine warning alarm and plant shutdown alarm, indicating either an additional chlorine demand at the reservoir or a failure within the signal or monitoring of chlorine residual and flow at the reservoir. Staff confirmed that further investigations would be undertaken following the audit to confirm the flows and level of chlorine residual leaving the reservoir and the maintenance of an adequate chlorine residual in the network.
3.	<p>Exceedances of the Parametric Values</p> <ol style="list-style-type: none"> Pesticide exceedances caused by bentazone occurred in the Clonroche public water supply on four occasions in 2018 (March, April, November, December) and twice (to date) in 2019 (January & February). A very high bentazone level of 0.988 µl occurred in the raw water of borehole 1 on 13/3/2019. There was no result for bentazone in final water on that date. Pesticide monitoring continues for the supply in accordance with Irish Water's Strategy on the Control of Pesticides in Drinking Water. The nearest recorded use of bentazone is approximately 25km away from the Clonroche WTP, so it was considered unlikely that this use is responsible for the exceedances. The Pesticide Control Service (DAFM) will check with all suppliers in the Wexford area to see who is buying Bentazone. They can then identify where it has been used down to field level and check what crops are being grown in the area. Irish Water are consulting with Teagasc on an on-going basis regarding the bentazone detections in the drinking water supply. Teagasc has engaged with local groups, held public talks on pesticides. Press releases and public radio announcements have taken place on the safe use of pesticides.

3. AUDITORS' COMMENTS

This audit was carried out in response to the Bentazone exceedances that occurred in the Clonroche public water supply on four occasions in 2018 and twice (to date) in 2019. As a result of these persistent exceedances Clonroche PWS was placed on the EPA's Remedial Action List and a Regulation 16(1) Direction was issued on 21/12/18.

The audit found that the source of the Bentazone exceedances remains unknown. Irish Water has informed the EPA that a catchment measure approach will continue in relation to pesticide exceedances at the Clonroche public water supply. Irish Water is to ensure at least monthly monitoring of treated water from April to November until a minimum of one full growing season of compliant results are achieved. Under the requirements of the Regulation 16(1) Direction issued by the EPA, Irish Water must ensure compliance with the pesticides parametric value of 0.1 µg/l as soon as possible, and no later than 31/01/2021.

During the audit, alarm and plant shutdown system issues were observed. The alarm monitoring system has not yet been fully commissioned and Irish Water stated at the audit that this would be completed in a few weeks. Irish Water are advised that this should take place as soon as possible and issues with the monitoring and shutdown system at this plant should also be resolved as soon as possible. Due to these alarm/shutdown errors, the EPA is concerned that the levels of chlorine in the treated water are not accurately known or controlled.

4. RECOMMENDATIONS

1. Irish Water should ensure at least monthly monitoring of pesticides in treated water from April to November until a minimum of one full growing season of compliant results are achieved.
2. Irish Water should ensure that process proving and commissioning of the disinfection system upgrade, including monitoring, controls and alarms, is completed and that adequate disinfection is verified. As part of this process the alarm settings and relevant system delays should be reviewed to allow appropriate response to issues with the disinfection system.

FOLLOW-UP ACTIONS REQUIRED BY IRISH WATER

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. This report has been reviewed and approved by Aoife Loughnane, Drinking Water Team Leader.

Irish Water should submit a report to the Agency within one month of the date of this audit report detailing how it has dealt with the issues of concern identified during this audit. The report should include details on the action taken and planned to address the various recommendations, including timeframe for commencement and completion of any planned work.

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.

Please quote the File Reference Number in any future correspondence in relation to this Report.

Report prepared by:



Date:

17/04/2019

Daryl Gunning
Inspector