Drinking Water Audit Report

County:	Wexford	**Date of Audit:**	7th July 2017
Plant(s) visited:	Camolin Water Treatment Plant (3300PUB1779)	**Date of issue of Audit Report:**	11th July 2017
		File Reference:	DW2017/91
		Auditors:	Mr. Darragh Page
Audit Criteria:	• The *European Union (Drinking Water) Regulations 2014 (S.I. 122 of 2014).* • *The EPA Handbook on the Implementation of the Regulations for Water Services Authorities for Public Water Supplies (ISBN: 978-1-84095-349-7)* • The recommendations specified in the EPA *Drinking Water Report*. • EPA Drinking Water Advice Notes No.s 1 to 15. • The recommendations in any previous audit reports.		

MAIN FINDINGS

i. **Neither Wexford County Council nor Irish Water were aware of how Camolin water treatment plant was set up, in the absence of the caretaker on leave. In particular, neither were aware of the actual locations of the chemical dosing points and the sequence of chemical dosing at the plant. Irish Water must ensure that all staff operating the plant on a full time or relief basis are fully aware of how the plant is operated and managed, and must take action to ensure that this issue is addressed at this plant and others.**

1. INTRODUCTION

Under the *European Union (Drinking Water) Regulations 2014* the Environmental Protection Agency is the supervisory authority in relation to Irish Water and its role in the provision of public water supplies. This unannounced audit was carried out to assess the performance of Irish Water in providing clean and wholesome drinking water in the Camolin public water supply.

The Camolin public water supply is a groundwater supply originating from a borehole close to the village. The groundwater is pumped to the Camolin water treatment plant where it is chlorinated and the pH is corrected. The borehole produces 140 m^3/d and serves 316 people.

The opening meeting commenced at 11:50 am at the Camolin water treatment plant. 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:
Mr. Patrick Duggan, Compliance Specialist, Irish Water
Ms. Deirdre O'Loughlin, Compliance Monitoring Liaison Specialist, Irish Water

Mr. Brian O'Leary, SLA Operations Lead, Irish Water
Mr. Leonard Poole, Executive Engineer, Wexford County Council
Mr. Tony Quirke, Area Engineer, Wexford County Council
Mr. Tony Moore, Senior GSS, Wexford County Council
Mr. Michael Kavanagh, Relief Caretaker, Wexford County Council

Representing the Environmental Protection Agency:

Mr. Darragh Page, Senior 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.	**Source Protection** a. Details of the borehole construction including depth of borehole and depth of casing were not available at the time of the audit and no-one in attendance was able to give any details of the borehole. b. The borehole is located in a housing estate and is in a sealed and locked chamber on a green area facing the houses. It is secure from surface water ingress, however there was no cap on the borehole.
2.	**Disinfection** a. The raw water is pumped from the borehole to a storage reservoir and is chlorinated using sodium hypochlorite. b. The manholes entering and exiting the reservoir were lifted and there were three chemical dosing lines on both the inlet and outlet. The valves on all dosing lines (with the exception of the first dosing line on the inlet) were in the open position. Initially, neither Irish Water nor Wexford County Council were able to explain which dosing lines were sodium hypochlorite and which were sodium hydroxide (i.e. whether they were dosed on the inlet or outlet). The schematic for the plant (see Photo 1) indicated that the inlet dosing points were in use, however, the closed valve on the sodium hydroxide dosing point on the inlet indicated that this was not the case. A sample of water from the reservoir was analysed and chlorine was found to be present which confirmed that the inlet was disinfected. This was contrary to what Wexford County Council staff had thought (the caretaker for the plant was on leave and the plant was being run by the relief caretaker). It was therefore assumed that the chlorine dosing points on the outlet are redundant but have not been decommissioned. c. The chlorine levels on the chlorine monitor on the outlet appear to be stable with the exception of a period of 3 hours on 6th July where Wexford County Council stated that the power failed resulting in a loss of signal from the chlorine monitor. Water continued to be supplied to the village from the reservoir but no water was being pumped from the borehole to the reservoir and therefore it is likely that chlorine levels in the water supplied to consumers were adequate. d. The outlet chamber was partially filled with water (see Photo 2). e. There is a chlorine monitor and alarm and there was evidence that the alarm was functional in response to low chlorine levels.

3.	**pH Correction** a. The low pH in the raw water is corrected using sodium hydroxide. It appears that this is being dosed on the reservoir outlet, though this could not be confirmed at the time of the audit. b. Irish Water stated that remedial works had been undertaken to move the pH correction point to before the reservoir to reduce the possibility of overdosing. While pipework had been installed to effect this change, it appears that the valve on the pH dosing point on the inlet was closed and that pH correction was taking place on the outlet. Irish Water stated that this was contrary to what should be in place.
4.	**Management and Control** a. The caretaker normally responsible for the management of the plant was on leave at the time of the audit and the plant was being managed by the relief caretaker. b. Neither Wexford County Council nor Irish Water staff were aware of the location of chemical dosing points at the plant and were unable to say, without sampling, which of the sodium hypochlorite and sodium hydroxide dosing points were in operation. Upon arrival at the site, the auditor was informed that the reservoir was a raw water reservoir even though it emerged that it was a treated water reservoir. c. The schematic at the plant was wrong and not representative of the how the plant operates. This could have had significant implications in the event of an incident when the plant is being operated and managed by relief caretaking staff.

3. AUDITORS COMMENTS

This audit was an unannounced audit to assess the performance of Irish Water in delivering safe and secure drinking water to consumers on Camolin public water supply. The Camolin water treatment plant has been fully compliant with the drinking water standards and has produced good quality drinking water. However, the lack of knowledge by both Irish Water and Wexford County Council on how the plant operates and in particular where the chemical dosing points were, in the absence of the normal caretaker, is of concern and presents a risk to the safe operation of the plant.

Irish Water must ensure that all staff operating the plant on a full time or relief basis are fully aware of how the plant is operated and managed and must take action to ensure that this issue is addressed at this plant and others.

4. RECOMMENDATIONS

General

1. Irish Water should review the schematic of Camolin water treatment plant and ensure that it represents the correct sequence of treatment processes at the plant.

Source Protection

2. Irish Water should install a cap on the borehole to reduce the risk of contamination of the raw water source.

Disinfection

3. Irish Water should review the necessity for the sodium hypochlorite dosing points on the outlet of the reservoir, and if they are no longer required they should be decommissioned.

4. Irish Water should empty the standing water in the outlet chamber where the redundant sodium hypochlorite dosing points are located, and determine if the water accumulation there is due to a leak. Any repairs should be completed as soon as possible after the need has been identified.

pH Correction

5. Irish Water should review the dosing arrangements for pH correction and ensure that any redundant dosing lines are decommissioned.

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 Ms 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:** 11th July 2017

Senior Inspector

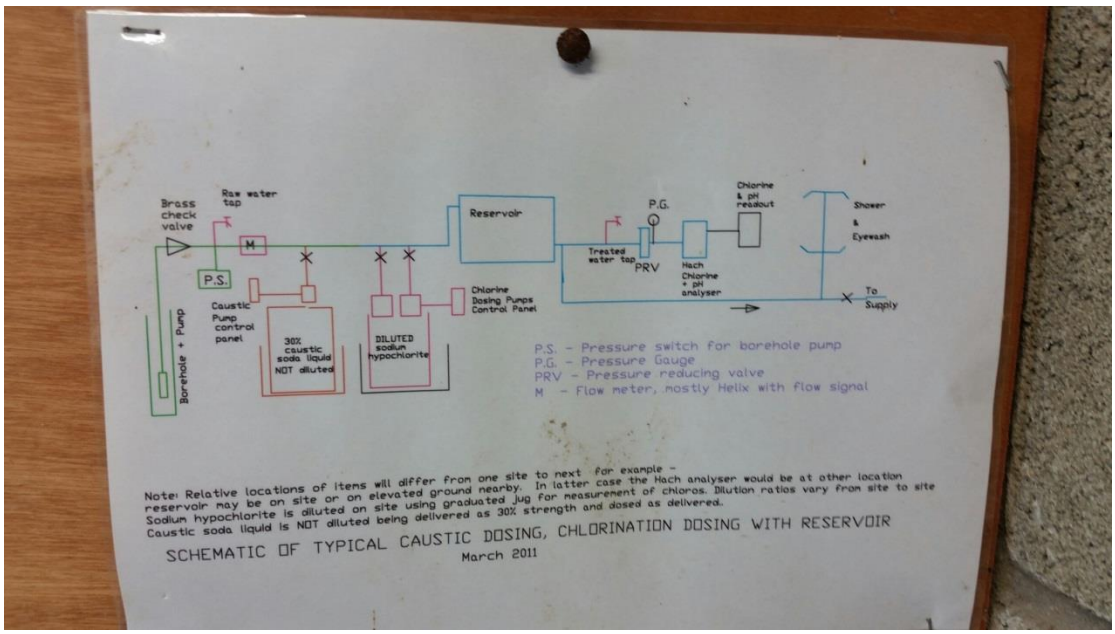

Photo 1. Schematic of the Camolin Water Treatment Plant.

Photo 2. Redundant Sodium Hypochlorite Dosing Points on the Outlet of the Reservoir (note the chamber is partially filled with water)