



Drinking Water Audit Report

County:	Waterford	Date of Audit:	26 th February 2015
Plant(s) visited:	Colligan PWS (3100PUB1032) and Carrowgarrif PWS (3100PUB1027)	Date of issue of Audit Report:	19 th March 2015
		File Reference:	DW2009/27
		Auditors:	Ms Yvonne Doris
Audit Criteria:	<ul style="list-style-type: none"> • The <i>European Union (Drinking Water) Regulations 2014 (S.I. 122 of 2014)</i>. • 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> • The recommendations specified in the <i>EPA Drinking Water Report</i>. • The recommendations in any previous audit reports. 		

MAIN FINDINGS

- i. **Colligan water treatment plant ceased operation in November 2014. The Carrowgarrif PWS was extended in November 2014. Customers previously served by the Colligan PWS are now served by Carrowgarrif PWS. The Colligan connection to the source is decommissioned, motors and pumps have been removed and pumphouse is no longer in use for water abstraction or treatment. The Carrowgarrif PWS was extended to serve customers of the Colligan supply by the laying of a new water main.**
- ii. **The management of chemicals (chlorine day tank) should be reviewed and a cascade system of alarms to caretakers should be considered. Minor protection works to the reservoir vents are required.**

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 audit was carried out to assess the performance of Irish Water in providing clean and wholesome drinking water.

The Colligan PWS was a spring sourced supply serving 60 persons. An exceedance of the *E.coli* parametric limit occurred in 2009. The Carrowgarrif PWS was a Group Water Scheme that was taken in charge by the Council in the 1960s or 1970s, upgraded in 2014 and commissioned on 6/11/14.

Photographs taken by Yvonne Doris during the audit are attached to this report and are referred to in the text where relevant.

The opening meeting commenced at 10.30am at the Colligan pumphouse (not in use). 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:

Name – Job Title

Deirdre O’Loughlin, Compliance Analyst, Southern Region, Irish Water.

Tom Rogers, Operations and Maintenance Engineer, Waterford County Council

James Murray, Engineer, Waterford County Council

Alan Kirwan, Engineer, Waterford County Council
 Richie Hughes, Water Caretaker, Waterford County Council

Representing the Environmental Protection Agency:

Name – Job Title
 Yvonne Doris, 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. Carrowgarrif PWS is supplied by a new 66 metre deep well drilled in the first half of 2014 The wellhead is adequately capped and sealed. The wellhead is approximately 5cm above the surrounding ground level. The abstraction rate is 6m³/hour for 6 or 7 hours per day. b. Crypto risk assessment score is 26. It is predominantly Coillte forestry and grazing in the catchment. c. It was unclear whether the responsibilities under the Good Agricultural Practice Regulations have been undertaken. The zone of contribution was delineated for the old source but has yet to be completed for the new source. d. The old borehole is not being used but has not been decommissioned, though likely to be completed within 2 weeks of the audit.
2.	<p>Chlorination and Disinfection</p> <ul style="list-style-type: none"> a. 14/15% sodium hypochlorite is used to disinfect the water prior to entering the reservoirs. b. A best before date of 9/1/15 was observed on a drum in the pumphouse. c. The chlorine day tank had last been made up on 31/12/14. 96 litres of sodium hypochlorite were made up, equivalent to 60 days of chlorine. d. The chlorine is dosed at a fixed rate of 0.6mg/l and linked to the chlorine residual leaving the reservoir. There are duty and standby chlorine dosing pumps with automatic switchover should one fail. The chlorine monitor was reading 0.61mg/l from the outlet from the reservoir. The chlorine alarm alerts the caretaker. No other person receives an alarm and there is no escalation of alarms beyond caretakers. Each working day a technician checks all alarms at each plant. Three fulltime caretakers check each other's alarms on an ongoing basis. e. If residual chlorine falls below 0.3mg/l the plant automatically shuts down and a manual start-up is required. f. A chlorine alarm response procedure is in place but was not on display at the plant. g. There is facility to install a UV system in the future should this be required. h. The caretaker takes residual chlorine readings every second or third day in the network. Results are typically 0.5mg/l.
3.	<p>Treated Water Storage and Distribution Network</p> <ul style="list-style-type: none"> a. Disinfected water is pumped into two 15m³ reservoirs, connected to one another. The reservoirs provide approximately 24 hours storage. b. The distribution network is 4.5 to 5km long. Flushing and scouring of the network has not been carried out yet and there is no flushing plan in place. Scour valves are in place and uni-directional flushing training has been completed. c. Reservoir access hatches were locked but vents are unmeshed (photograph 2).
4.	<p>Chemical storage and bunds</p> <ul style="list-style-type: none"> a. A drum of sodium hypochlorite had been left at the top of the reservoir (photograph 1).

5.	<p>Hygiene and Housekeeping</p> <p>a. Hygiene and housekeeping was good at the plant.</p>
6.	<p>Management and Control</p> <p>a. Three caretakers, responsible for 40 treatment plants, manually check the alarms of the other two caretakers. There is no escalation of alarms beyond the level of caretaker. Out of working hours alarms are responded to by caretakers. Each workday a technician checks all alarms at all treatment plants in County Waterford.</p> <p>b. A technician calibrates all analysers. All HACH kits are calibrated each time they are used and they were all serviced 6 weeks ago.</p> <p>c. All caretakers have FETAC level 5 training for drinking water treatment.</p> <p>d. There have been no complaints received regarding the quality of the water.</p>

3. AUDITORS COMMENTS

The new Carrowgarrif source and treatment plant has supplied the customers previously supplied by Colligan since 6th November 2015. The Carrowgarrif public water supply meets the minimum disinfection criteria required by the EPA. However, the management of chemicals (chlorine day tank) should be reviewed and a cascade system of alarms to caretakers should be considered. Some minor protection works to reservoir vents are required.

4. RECOMMENDATIONS

Source Protection

1. Irish Water should implement the requirements of the *European Union (Good Agricultural Practice for the Protection of Waters) Regulations 2014 (SI No.31 of 2014)* to ensure, unless an alternative setback distance has been set as per Article 17 that:
 - i. Organic fertiliser or soiled water is not applied to land within 200 m of the abstraction point; and
 - ii. Farmyard manure held in a field prior to landspreading is not placed within 250 m of the abstraction point.
2. Irish Water should examine the appropriateness of the setback distances in the *European Union (Good Agricultural Practice for the Protection of Waters) Regulations 2014 (SI No.31 of 2014)* for the source of the supply. Irish Water should have regard to the EPA guidance on alternative setback distances.

Disinfection

3. Irish Water should review the practice of making up a batch of chlorine disinfectant. Records should include date of preparation, dilution factor used, quantity prepared, name of person who prepared disinfectant and details on whether the neat disinfectant used is produced in accordance with an appropriate IS:EN or BS:EN standard or are on the *List of Approved Products and Processes* as published by the Drinking Water Inspectorate of England and Wales (www.dwi.gov.uk).
4. Irish Water should ensure that stocks of chemicals, in particular sodium hypochlorite, are maintained to ensure expired chemicals are not in use.

Treated Water Storage

5. Irish Water should ensure that all vents on the reservoir are secured against ingress of animals or deliberate introduction of any contaminant or acts of vandalism.

Distribution System

6. Irish Water should instigate a regular programme of flushing and scouring of the mains.

Chemical Storage and Bunds

7. Irish Water should review chemical storage arrangements at the treatment plant. Chemicals must be stored in banded areas 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 banded area. Refer to EPA guidance document –“*IPC Guidance Note on Storage and Transfer of Materials for Scheduled Activities*”.

Hygiene and Housekeeping

8. Irish Water should remove the sodium hypochlorite drum from the roof of the reservoir.

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 Mr Darragh Page, Drinking Water Team Leader.

Irish Water is recommended to put such measures in place as are necessary to implement the recommendations listed in this report. The actions by Irish Water to address the recommendations taken will be verified by the Agency during any future audits.

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:

Yvonne Doris

Date:

19th March 2015

Yvonne Doris

Inspector



Photograph 1: Drum of sodium hypochlorite on roof of reservoir.



Photograph 2: Unmeshed vents allowing access to treated water reservoir.