



# Drinking Water Audit Report

<b>County:</b>	Cork	<b>Date of Audit:</b>	01/12/17
<b>Plant(s) visited:</b>	Toureen / Derry Drinking Water Treatment Plant  (Scheme Code 0500PUB1409)	<b>Date of issue of Audit Report:</b>	19/12/17
		<b>File Reference:</b>	DW2017/181
		<b>Auditors:</b>	Ms Criona Doyle Ms. Regina Campbell
<b>Audit Criteria:</b>	<ul style="list-style-type: none"> <li>• The <i>European Union (Drinking Water) Regulations 2014 (S.I. 122 of 2014)</i>.</li> <li>• 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></li> <li>• The recommendations specified in the <i>EPA Drinking Water Report</i>.</li> <li>• EPA Drinking Water Advice Notes No.s 1 to 15.</li> <li>• The recommendations in any previous audit reports.</li> </ul>		

## MAIN FINDINGS

- i. ***Cryptosporidium* has been detected in the Toureen / Derry Water Supply. Irish Water should provide details on the proposed remedial works, including timeframes, to ensure an adequate barrier to *Cryptosporidium* is provided.**

## 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 following the detection of *Cryptosporidium* in the Toureen / Derry Public Water Supply (PWS) on the 14<sup>th</sup> of November 2017.

Two springs and a borehole are present on site. The raw water is generally supplied by the springs. The borehole is used to augment the supply when required. On average the volume of treated water produced is 16m<sup>3</sup>/d. An 18m<sup>3</sup> storage reservoir is located at the treatment plant. Treatment at the plant includes disinfection by chlorination. Since the detection of *Cryptosporidium* the springs have not been used and water is only being obtained from the borehole.

The opening meeting commenced at 2pm at the Toureen / Derry 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 audit observations and recommendations are listed in Section 2 and 4 of this report. The following were in attendance during the audit.

**Representing Cork County Council:**

Pat Walsh, Senior Executive Engineer, Cork County Council.

Patrick Kelly, Water Liaison Engineer, Cork County Council.

John Enright, Water Curator, Cork County Council.

**Representing the Environmental Protection Agency:**

Regina Campbell, Inspector.

Criona Doyle, 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.*

<p><b>1.</b></p>	<p><b>Exceedances of the Parametric Values</b></p> <ul style="list-style-type: none"> <li>a. On the 21/11/17 the EPA was notified of the detection of <i>Cryptosporidium</i> (0.013 / 10 L) in the treated water at Toureen / Derry from a sample taken on the 14/11/17 (spring sample).</li> <li>b. On the instruction of the HSE weekly monitoring of <i>Cryptosporidium</i> is being undertaken for a minimum of 4 weeks.</li> <li>c. Following the detection of <i>Cryptosporidium</i> the abstraction of water from the springs ceased and the borehole was brought into supply.</li> <li>d. The supply was resampled on the 22/11/17 (borehole sample) and no <i>Cryptosporidium</i> was detected. No further <i>Cryptosporidium</i> exceedances have been reported.</li> <li>e. The borehole was reported to have an elevated concentration of manganese when it was brought into service. Cork County Council outlined that the requirement for the installation of a package treatment plant for manganese removal was being investigated.</li> <li>f. Cork County Council outlined that there are number of supplies with persistent low pH which are reported on a quarterly basis to the HSE. These supplies have not been notified to the EPA during 2017.</li> </ul>
<p><b>2.</b></p>	<p><b>Source Protection</b></p> <ul style="list-style-type: none"> <li>a. Prior to the <i>Cryptosporidium</i> detection the water for the supply was normally provided from the two springs. Since the detection of <i>Cryptosporidium</i> the springs have not been used and water is only being obtained from the borehole.</li> <li>b. The springs are located on private land. The spring collection chambers are fitted with locked covers but the area is not securely fenced (timber post and barbed wire fence is in place). Cork County Council outlined that the landowner does not graze livestock in the rough ground in the vicinity of the springs.</li> <li>c. The borehole is located adjacent to the treatment plant building. The borehole is located in a secure above ground chamber and the pipework at the wellhead is sealed.</li> <li>d. Check and audit monitoring results were provided for the spring source. No raw water monitoring results were available.</li> <li>e. The landowners with lands in the buffer zones have been informed of their obligations regarding the buffer zones required under the European Union (Good Agricultural Practice for Protection of Waters) Regulations 2014 (S.I. No. 31 of 2014).</li> <li>f. Prior to the exceedance, sampling for <i>Cryptosporidium</i> took place once or twice per year. There have been no previous detections of <i>Cryptosporidium</i> in the treated water.</li> </ul>

3.	<p><b>Disinfection</b></p> <ul style="list-style-type: none"> <li>a. Disinfection consists of chlorination using 10-11% sodium hypochlorite.</li> <li>b. Duty and standby chlorine dosing pumps are installed on site and dosing is flow proportional. The pumps automatically switch over every 12 hours.</li> <li>c. The low level chlorine alarm is set at 0.22mg/l and the high level alarm is set at 2.2mg/l. The caretaker and relief caretaker receive a text alert in the event of the alarm being triggered and the supply is automatically shut down after 30 minutes.</li> </ul>
4.	<p><b>Treated Water Storage and Distribution Network</b></p> <ul style="list-style-type: none"> <li>a. The above ground storage reservoir (18m<sup>3</sup>) is surrounded by an earthen embankment. The reservoir was cleaned out following the detection of <i>Cryptosporidium</i>.</li> </ul>
5.	<p><b>Chemical storage and bunds</b></p> <ul style="list-style-type: none"> <li>a. The chlorine day tank was adequately banded. There was a build up of liquid visible in the bund.</li> <li>b. One 25 litre drum of sodium hypochlorite is kept on site in a banded area and was within the expiry date.</li> <li>c. Filling operations for the caustic bulk tank are supervised by the caretaker.</li> </ul>

### 3. AUDITORS COMMENTS

*Cryptosporidium* was detected in the Toureen / Derry supply on the 14<sup>th</sup> of November 2017. No *cryptosporidium* was detected in the resample on the 22<sup>nd</sup> of November 2017. The springs are no longer being used and water is only being obtained from the borehole.

Irish Water have not confirmed the proposed remedial works to ensure that an adequate barrier to *Cryptosporidium* is provided to ensure the safety and security of the Toureen / Derry public water supply.

### 4. RECOMMENDATIONS

#### Disinfection

1. Irish Water should provide details (including timeframes) on the proposed remedial works to ensure an adequate barrier to *Cryptosporidium* is provided.

#### Exceedance of the Parametric Values

2. Irish Water should notify the EPA of any manganese exceedances via ODWNs.
3. Irish Water should forward the details of schemes in County Cork which have been identified as having persistent pH issues. In relation to pH all persistent exceedances county wide should be notified via ODWNs as soon as they are detected unless otherwise agreed with the Agency.

#### Source Protection

4. Irish Water should forward the borehole log to confirm the installation details and the presence of the annular seal.
5. Irish Water should forward the results of the raw water monitoring undertaken to characterise the source intended to be used going forward.

**Chemical storage and bunds**

- 6. Irish Water should ensure that all bunds are cleaned out and any build-up of liquid in the bund surrounding the chlorine day tank is removed.

**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 Regina Campbell, 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:**

*Cristina Doyle*

**Date:**

19/12/17

Inspector