

	<h1>Drinking Water Audit Report</h1>
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<b>County:</b>	Cork	<b>Date of Audit:</b>	21/09/17
<b>Plant(s) visited:</b>	Ballyhooly Drinking Water Treatment Plant  (Scheme Code 0500PUB1203)	<b>Date of issue of Audit Report:</b>	05/10/17
		<b>File Reference:</b>	DW2017/124
		<b>Auditors:</b>	Ms Criona Doyle
<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 Ballyhooly Water Supply. At present there is no treatment barrier in place to prevent against *Cryptosporidium*. Irish Water should install an adequate barrier against *Cryptosporidium* to ensure that the water supply is adequately treated at all times.**
- ii. **The figures reported on EDEN for population served, volume supplied and treatment provided are incorrect and should be updated.**

## 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 Ballyhooly Public Water Supply (PWS) on the 9<sup>th</sup> of August 2017.

The raw water for the supply is obtained from a covered spring adjacent to the Awbeg River. On average the volume of treated water produced is 650m<sup>3</sup>/d. Treatment at the plant includes disinfection by chlorination. Fluoride is also added to the water. The treated water is pumped to the storage reservoir at Ballinvoher.

The opening meeting commenced at 2:30pm at the Ballyhooly 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:**

Deirdre O'Loughlin, Compliance Specialist, Irish Water.

Patrick Duggan, Water Compliance Monitoring Analyst, Irish Water.

Pat Walsh, Senior Executive Engineer, Cork County Council.

Patrick Kelly, Water Liaison Engineer, Cork County Council.

Mary Hickey, Executive Scientist, Cork County Council.

Vincent Strand, Executive Engineer, Cork County Council.

Timothy Hegarty, Caretaker, Cork County Council.

**Representing the Environmental Protection Agency:**

Criona Doyle, Inspector.

**Representing the HSE:**

Stephen Ryan, Senior Environmental Health Officer

**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.*

<b>1.</b>	<b>Exceedances of the Parametric Values</b> <ol style="list-style-type: none"> <li>On the 17/08/17 the EPA was notified of the detection of <i>Cryptosporidium</i> (0.02 / 10 L) in the treated water at Ballyhooly from a sample taken on the 09/08/17.</li> <li>On the instruction of the HSE weekly monitoring of <i>Cryptosporidium</i> and <i>Giardia</i> has been taking place since the notification of the exceedance. No further exceedances have been detected in the samples subsequently taken on 22/08/09; 29/08/17; 05/09/17 and 12/09/17.</li> <li>The <i>Cryptosporidium</i> risk score for the supply is 106 which is classed as very high risk.</li> </ol>
<b>2.</b>	<b>General</b> <ol style="list-style-type: none"> <li>Details on the supply volume, population served and treatment provided on EDEN are incorrect. There is no UV treatment present and the average daily production volume is approximately 650m<sup>3</sup>/d.</li> <li>Irish Water and the HSE are due to meet in the last week of September to review the monitoring results.</li> </ol>
<b>3.</b>	<b>Source Protection</b> <ol style="list-style-type: none"> <li>The covered spring is located on the east of the Awbeg River adjacent to the treatment plant building.</li> <li>Cork County Council reported that the Zone of Contribution has been delineated by the GSI.</li> <li>Due to the vulnerability of the source (karst area) Cork County Council monitor landuse and all planning applications within the Zone of Contribution.</li> <li>Cork County Council have contacted the 2 no. landowners with lands within the buffer zones and informed them of their obligations under the GAP Regulations. A map with the buffer zones was displayed on site. The main landuse within the buffer zones is dry stock.</li> <li>Sampling for <i>Cryptosporidium</i> is scheduled to take place twice per year. There have been no previous detections of <i>Cryptosporidium</i> in the treated water.</li> <li>There is no programme of raw water monitoring for the supply. There is no online turbidity or UVT monitor present.</li> </ol>

4.	<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. Dosing is flow proportional and is not linked to the residual chlorine monitor. The pumps automatically switch over every hour. The target residual chlorine level is 0.5 mg/l leaving the reservoir.</li> <li>c. The low level chlorine alarm is set at 0.2mg/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. There is no further cascade in the event of the alarm being triggered.</li> <li>d. The day tank is filled once a week and recorded in the site diary.</li> </ul>
5.	<p><b>Treated Water Storage and Distribution Network</b></p> <ul style="list-style-type: none"> <li>a. The reservoir is located at Ballinvohar and has a storage volume of 182m<sup>3</sup>.</li> <li>b. The distance to the farthest point on the network is approximately 11km. Monitoring of free and total chlorine levels is undertaken at the end of the network.</li> <li>c. The reservoir was constructed in the 1980's. It was last scoured 2 years ago.</li> </ul>
6.	<p><b>Chemical storage and bunds</b></p> <ul style="list-style-type: none"> <li>a. The chlorine day tank and fluoride day tank were adequately banded.</li> <li>b. 25 litre drums of sodium hypochlorite 10/11% are stored in a banded area and were within the use by date of 16/11/17.</li> <li>c. The bulk storage tank for fluorosilicic acid was vented and filling operations are supervised by the caretaker.</li> </ul>

### 3. AUDITORS COMMENTS

*Cryptosporidium* was detected in the supply on the 09/08/17. While subsequent weekly sampling has not determined any further exceedances the *Cryptosporidium* risk score indicates the supply is classed as very high risk. There is no barrier to prevent *Cryptosporidium* entering the water supply.

Irish Water should prioritise the installation of a *Cryptosporidium* barrier to ensure the safety and security of the Ballyhooly public water supply.

Irish Water should ensure that the correct information for this supply is updated on EDEN.

### 4. RECOMMENDATIONS

#### Disinfection

1. Irish Water should install a suitable barrier against *Cryptosporidium* on the Ballyhooly PWS to ensure that the water supply is adequately treated.

#### General

2. Irish Water are requested to forward details of any further advice from the HSE following the review meeting scheduled to take place before the end of September.
3. Irish Water should update EDEN to reflect the correct supply volume, population served and treatment provided

## **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:**

*Gráda Doyle*

**Date:**

05/10/17

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Inspector