



Drinking Water Audit Report

County:	Cork	Date of Audit:	01/12/17
Plant(s) visited:	Bartlemy Drinking Water Treatment Plant (Scheme Code 0500PUB1202)	Date of issue of Audit Report:	18/12/17
		File Reference:	DW2017/133
		Auditors:	Ms Criona Doyle Ms. Regina Campbell
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>. • EPA Drinking Water Advice Notes No.s 1 to 15. • The recommendations in any previous audit reports. 		

MAIN FINDINGS

- i. ***Cryptosporidium* has been detected in the Bartlemy 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 Bartlemy Public Water Supply (PWS) on the 22nd of August 2017.

A covered spring and borehole are present on site. The raw water is generally supplied by the spring. The borehole is used to augment the supply when required. On average the volume of treated water produced is 33m³/d. Treatment at the plant includes disinfection by chlorination and pH correction.

The opening meeting commenced at 10am at the Bartlemy 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:

John Fitzgerald, Regional Engineer, Irish Water.

Representing Cork County Council

Pat Walsh, Senior Executive Engineer, Cork County Council.

Patrick Kelly, Water Liaison Engineer, Cork County Council.

Donal Scannell, 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>1.</p>	<p>Exceedances of the Parametric Values</p> <ul style="list-style-type: none"> a. On the 29/08/17 the EPA was notified of the detection of <i>Cryptosporidium</i> (0.01 / 10 L) in the treated water at Bartlemy from a sample taken on the 22/08/17 (spring sample). b. On the instruction of the HSE weekly monitoring of <i>Cryptosporidium</i> initially took place. On the 09/10/17 on the instruction of the HSE the monitoring frequency was reduced to monthly. c. No further exceedances have been detected in the samples subsequently taken on from the spring source on 30/08/09; 12/09/17; 19/09/17; 26/09/17 (borehole also sampled and clear); 03/10/17 and 14/11/17. d. The <i>Cryptosporidium</i> risk score for the spring source is 54 (moderate risk) while the score for the borehole source is 4 (low risk).
<p>2.</p>	<p>Source Protection</p> <ul style="list-style-type: none"> a. The spring is used as the main source while the borehole is generally used as a backup supply. b. The covered spring is in a secure fenced compound approximately 200m from the treatment plant building across farmland. c. The borehole is located adjacent to the treatment plant building and is covered by a secure and well fitted cover. There is no potential for ingress of surface water at the well head. d. The borehole log indicated the following: total depth 85m, 200mm steel installed to 7.5m and 150mm well screen to 75m. The log indicated the presence of a bentonite seal but the extent of the seal was not recorded. e. The buffer zones required under the European Union (Good Agricultural Practice for Protection of Waters) Regulations 2014 (S.I. No. 31 of 2014) have been delineated and are displayed on site. Cork County Council contacted one of the landowners in September 2017 and the remaining landowners have not been contacted since 2008. f. Prior to the exceedance, sampling for <i>Cryptosporidium</i> took place twice per year. There have been no previous detections of <i>Cryptosporidium</i> in the treated water. g. There was no historic raw water monitoring data available for the supply. Sampling has recently taken place but the full results were not available at the audit. The preliminary results indicated no total coliforms or E. Coliforms. h. An online turbidity monitor has been installed since the exceedance. The turbidity on the day

	of the audit was 0.078 NTU. The unit is not currently connected to SCADA.
4.	<p>Disinfection</p> <ul style="list-style-type: none"> a. Disinfection consists of chlorination using 10-11% sodium hypochlorite. b. Duty and standby chlorine dosing pumps are installed on site and dosing is flow proportional. The pumps automatically switch over every half hour. The target residual chlorine level is 0.8 mg/l leaving the reservoir. c. The low level chlorine alarm is set at 0.2mg/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.
5.	<p>Treated Water Storage and Distribution Network</p> <ul style="list-style-type: none"> a. Two above ground concrete tanks are used for treated water storage (volume 36m³ per tank). The tanks were installed 15 years ago. They are regularly scoured but have not been inspected since they were installed. b. The monitoring of free chlorine levels is undertaken at the end of the network by the caretaker on a daily basis and documented. c. The treated water storage tanks were installed 15 years ago.
6.	<p>Chemical storage and bunds</p> <ul style="list-style-type: none"> a. The chlorine day tank and caustic bulk storage tank were adequately banded. b. One 25 litre drum of sodium hypochlorite is kept on site in a banded area and was within the expiry date. c. Filling operations for the caustic bulk tank are supervised by the caretaker.

3. AUDITORS COMMENTS

Cryptosporidium was detected in the Bartlemy supply on the 22/08/17. Subsequent sampling has not determined any further exceedances. Irish Water should provide details on the proposed remedial works, including timeframes, to ensure an adequate barrier to *Cryptosporidium* is provided.

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.

Source Protection

2. Irish Water should liaise with Cork County Council to ensure that all landowners are aware of the setback distances in the European Union (Good Agricultural Practice for the Protection of Waters) Regulations 2014 (S.I. No. 31 of 2014) for the sources for the supply.
3. Irish Water should link the turbidity monitor to the SCADA to allow a profile of the variation in turbidity to be built up to characterise the raw water.
4. Irish Water should confirm the proposed frequency of E. Coli monitoring in the raw water for characterisation of the quality of the spring source. Irish Water should forward the results of the raw water monitoring data for the supply to the Agency.

Treated Water Storage and Distribution Network

5. Irish Water should ensure that the service reservoir is inspected and cleaned out on a regular basis.

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:

18/12/17

Inspector