



# Drinking Water Audit Report

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| <b>County:</b>           | Cork  | <b>Date of Audit:</b>                 | 18/05/17                                |
| <b>Plant(s) visited:</b> | Ballyverane Public Water Supply (Scheme Code 0500PUB2310)   | <b>Date of issue of Audit Report:</b> | 07/06/17                                |
|                          |   | <b>File Reference:</b>                | DW2017/55                               |
|                          |   | <b>Auditors:</b>                      | Ms. Criona Doyle<br>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. Irish Water should undertake the analysis of metals to ensure that the low pH is not resulting in elevated concentrations of metals.
- ii. Corrective actions are required to ensure compliance with the parametric value for pH.
- iii. The figures reported on EDEN for population served and volume supplied 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.

The Ballyverane Water Supply is fed from a borehole located within the treatment plant building. The supply serves a population of 5 people and supplies a volume of between 1 to 2 m<sup>3</sup>/d. The groundwater is disinfected and supplies the 2 no. houses adjacent to the treatment plant building.

The opening meeting commenced at 2:30pm at the Ballyverane 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 Monitoring Liaison Specialist, Irish Water.

Siobhan Clifford, Compliance Analyst, Irish Water.

Padraig Thornton, Acting Senior Executive Engineer, Cork County Council.

Mary Hickey, Executive Scientist, Cork County Council.

Martin Duggan, Water Treatment Plant Caretaker, 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.*

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| 1. | <p><b>Exceedances of the Parametric Values</b></p> <ul style="list-style-type: none"> <li>a. The monitoring results for 2014, 2015, 2016 and to date in 2017 were reviewed at the audit. The results indicated low pH. Irish Water had failed to notify the EPA of failure of the pH parameter on the 06/02/17. Irish Water were requested at the audit to review the pH monitoring results and notify the agency of any exceedances.</li> <li>b. Irish Water formally notified the EPA of the pH exceedance on the 23/05/17.</li> </ul>  |
| 2. | <p><b>General</b></p> <ul style="list-style-type: none"> <li>a. The supply volume on EDEN at the time of the audit was reported as 54m<sup>3</sup>/d serving a population of 168. While the Irish Water 2017 Sampling Plan stated a population of 2,344 people being served and a volume of 2m<sup>3</sup>/d being provided.</li> <li>b. At the audit the caretaker confirmed that the borehole supplies 2 no. houses with 5 no. persons being served. The daily production volume is of the order of 1 to 2 m<sup>3</sup>/d.</li> <li>c. The caretaker visits the site every 2 days.</li> </ul>  |
| 3. | <p><b>Source Protection</b></p> <ul style="list-style-type: none"> <li>a. The source for the Ballyverane Supply is a borehole located within the treatment plant building. No borehole log was available but the caretaker reported that the bored well was 33.5m (110ft) in depth. Construction details such as the depth of casing or the presence of an annular seal could not be determined on site. The wellhead is located within the treatment plant building. The borehole casing extends above floor level and was adequately sealed.</li> <li>b. Landuse in the immediate vicinity of the borehole includes agricultural land and the 2 no. houses which are supplied by the borehole.</li> </ul> |
| 4. | <p><b>Disinfection</b></p> <ul style="list-style-type: none"> <li>a. Sodium hypochlorite (10-12%) is used for disinfection. Due to the low volume of water treated a 10:1 dilution is required for the day tank.</li> </ul>   |

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|           | <ul style="list-style-type: none"> <li>b. Chlorine dosing is flow proportional. There are duty and standby chlorine dosing pumps in place with automatic switch over of the pumps in the event of pump breakdown. All pumps were labelled and both were within the calibration and service due dates.</li> <li>c. A looped rising main has been installed within the treatment plant building to provide additional contact time. The contact time on EDEN is indicated as 43.2 mg.min/l.</li> <li>d. The target chlorine residual leaving the treatment plant is 0.60mg/l. The two houses being supplied are located within 100m of the treatment plant. At the time of the audit the chlorine monitor was reading 0.60mg/l.</li> <li>e. The low level chlorine alarm is set at 0.20mg/l and is triggered when the residual chlorine level falls below 0.20 mg/l for greater than 15 minutes duration. There is also a high level chlorine alarm setting of 1.5 mg/l. In the event of either alarm being triggered a text alert is sent to the caretaker.</li> </ul> |
| <b>5.</b> | <p><b>Treated Water Storage and Distribution Network</b></p> <ul style="list-style-type: none"> <li>a. There is no storage of treated water for this supply. The borehole pumps to the network directly in response to demand.</li> </ul>   |
| <b>6.</b> | <p><b>Chemical storage and bunds</b></p> <ul style="list-style-type: none"> <li>a. The chlorine day tank was adequately banded. Due to the low levels of chlorine used a sodium hypochlorite drum was not being stored on site. The drums are stored at a central depot and brought to site as required to assist with stock control and to ensure the sodium hypochlorite is used within the expiry date.</li> </ul>   |
| <b>7.</b> | <p><b>Management and Control</b></p> <ul style="list-style-type: none"> <li>a. An alarm is generated for power failure and a text alert is sent to the caretaker.</li> </ul>  |

### 3. AUDITORS COMMENTS

Irish Water had not notified the Agency of previous pH exceedances on the Ballyverane supply which had been observed as having occurred since 2014. Irish Water should undertake an analysis of the suite of metals as per the audit list of parameters in accordance with *S.I. No. 122 of 2014 European Union (Drinking Water) Regulations 2014*. This is required to ensure that the low pH is not resulting in elevated concentrations of metals in the supply. Irish Water should ensure this issue of lack of reporting of pH non compliances is not taking place in any other water supplies where low pH is being detected. Corrective actions on the Ballyverane supply are required to ensure compliance with the parametric value for pH.

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

### 4. RECOMMENDATIONS

#### Exceedances of the Parametric Values

1. Irish Water should undertake the analysis of metals on this water supply in light of the low pH levels.
2. Irish Water should provide details on the planned corrective actions, including associated timeframes, to secure compliance with the pH parametric value.

## General

3. Irish Water should update EDEN to reflect the correct population served and volume supplied. The Irish Water 2017 Sampling Plan for this supply should be based on the correct figures.

## Source Protection

4. Irish Water should provide a borehole log for the supply borehole, if available.

## Disinfection

5. Irish Water should ensure that a record is kept each time a fresh batch of chlorine disinfectant is prepared. 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](http://www.dwi.gov.uk)).

## 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:**

*Criona Doyle*

**Date:**

07/06/17

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Inspector