



# Drinking Water Audit Report

<b>County:</b>	Wexford	<b>Date of Audit:</b>	12/04/18
<b>Plant(s) visited:</b>	- Vinegar Hill water treatment plant (WTP) Enniscorthy.	<b>Date of issue of Audit Report:</b>	04/05/18
	- Edermine BH	<b>File Reference:</b>	DW2018/71 & DW2014/300
	Scheme Code: 3300PUB1491	<b>Auditors:</b>	Ms Pauline Gillard Ms Michelle Roche
<b>Audit Criteria:</b>	<ul style="list-style-type: none"> <li>• The <i>European Union (Drinking Water) Regulations 2014, as amended</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 previous audit report on 13<sup>th</sup> February 2018.</li> </ul>		

## MAIN FINDINGS

- i. ***Cryptosporidium* and *Enterococci* were detected in the Enniscorthy public water supply on 5<sup>th</sup> April 2018. This audit was carried out to determine if the cause of the detections was a failure of the treatment processes at Vinegar Hill water treatment plant.**
- ii. **The previous EPA audit on 13<sup>th</sup> February 2018 identified the need to upgrade the disinfection system at Vinegar Hill WTP. The upgrade works are progressing and part of the works had started at the time of the audit.**

## 1. INTRODUCTION

Under the *European Union (Drinking Water) Regulations 2014, as amended* 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 in response to the notification by Irish Water dated 10<sup>th</sup> April 2018 of the detection of *Cryptosporidium* and the failure to meet the *Enterococci* parametric value in the Enniscorthy public water supply.

The Enniscorthy public water supply is sourced from the river Slaney and two boreholes at Edermine and Killagooley. The treatment plant at Vinegar Hill, Enniscorthy is currently operating at 135 m<sup>3</sup>/hr for 18-21 hours/day. Plant capacity is 3800 m<sup>3</sup>/day; Treatment includes chemical dosing with aluminium sulphate and polymer, clarification, filtration, disinfection using sodium hypochlorite and fluoridation.

The opening meeting commenced at 10.00am at Vinegar Hill WTP. The scope and purpose of the audit were outlined at the opening meeting. The scope of the audit covered the *Cryptosporidium* and *Enterococci* failures only and updates on the previous audit recommendations from 13<sup>th</sup> February 2018. 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:**

Patrick Duggan – Compliance Specialist  
 Brian O’Leary – Operations Lead

**Representing Wexford County Council**

Paul Delahunty – Executive Engineer  
 Fionnuala Callery – Senior Executive Engineer  
 Tadhg O’Corcora – Senior Executive Engineer  
 Pat Donohoe – Caretaker Vinegar Hill

**Representing the Environmental Protection Agency:**

Pauline Gillard – Inspector  
 Michelle Roche - 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.*

<b>1.</b>	<p><b>Source Protection</b></p> <ul style="list-style-type: none"> <li>a. Vinegar Hill WTP is located at the edge of the town with the land-use in the immediate area as residential.</li> <li>b. Vinegar Hill WTP perimeter is fenced and the site is secure.</li> <li>c. Wexford County Council confirmed that landowners were written to on the week of 9/04/18 by the Water Services Section to inform them of their obligations in relation to the requirements of the <i>European Union (Good Agricultural Practice for the Protection of Waters) Regulations 2014 (SI No.31 of 2014)</i>.</li> </ul>
<b>2.</b>	<p><b>Disinfection</b></p> <ul style="list-style-type: none"> <li>a. Disinfection at Vinegar Hill WTP consists of chlorination using sodium hypochlorite.</li> <li>b. There are two new chlorine pumps with a fixed rate dose of 1.4L per hour.</li> <li>c. There are duty and standby chlorine dosing pumps, and a chlorine monitor which is alarmed. The low chlorine alarm set point is 0.3 mg/l and High level alarm is 1.3 mg/l.</li> <li>d. When the chlorine alarm is triggered there is a documented cascade system in place for responding to the alarm.</li> <li>e. There is adequate chlorine contact time of 30 minutes at a minimum of 0.5mg/l free chlorine in accordance with EPA Advice Note 3.</li> <li>f. Irish Water stated that Vinegar Hill WTP will be upgraded under the National Disinfection Programme.</li> </ul>

<b>3.</b>	<p><b>Exceedances of the Parametric Values</b></p> <ol style="list-style-type: none"> <li>a. Two consecutive investigative <i>Cryptosporidium</i> samples were taken on 19/04/18 and 23/04/18. The samples taken were clear of any <i>Cryptosporidium</i> detections.</li> <li>b. A failure to meet the <i>Enterococci</i> parametric value on 5th April 2018 was notified to the EPA on 10th April 2018. Follow up samples at four locations in the supply zone were taken on 9th, 10<sup>th</sup> &amp; 11<sup>th</sup> April. All results were compliant with the microbiological standards and contained adequate levels of free residual chlorine.</li> <li>c. The SCADA records for chlorine residual levels at the treatment plant were reviewed from the 1<sup>st</sup> April through to the date of the exceedance on 5<sup>th</sup> April 2018 and post exceedance.</li> <li>d. The chlorine residual at final water tank decreased sharply on 4<sup>th</sup> April and the chlorine dose was immediately increased. The low-level chlorine alarm was activated and the caretaker was alerted. He attended the plant the next morning. Wexford County Council staff observed a milky colour at the river intake which suggested than a contamination event had occurred and impacted the raw water to the plant but they could not determine the source. The raw water intake was closed for a period during this time.</li> <li>e. Records of the raw water and final water turbidity at the plant were examined on the date of the exceedance and the week prior to the sample being taken and were adequate.</li> <li>f. The sample on 5<sup>th</sup> April 2018 had an unusual result with no <i>E.coli</i> or coliforms along with the <i>Enterococci</i> exceedance and adequate chlorine levels.</li> <li>g. 3 days of investigative samples taken at the WTP and in the network since the exceedances have been clear for microbiological exceedances.</li> <li>h. The results of the investigation could not determine the exact cause of the <i>Cryptosporidium</i> and <i>Enterococci</i> detections.</li> </ol>
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### 3. AUDITORS COMMENTS

The cause of the *Cryptosporidium* and *Enterococci* detections in Enniscorthy public water supply on 05/04/18 could not be determined. Investigative samples taken since the exceedances have been clear for microbiological exceedances and any *Cryptosporidium* detections.

### 4. RECOMMENDATIONS

#### Disinfection

1. Irish Water should progress the Disinfection Programme upgrades at Vinegar Hill water treatment plant as stated in previous EPA audit report dated 13<sup>th</sup> March 2018.

**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 Aoife Loughnane, 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:**



**Date:**

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Pauline Gillard

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04/05/18