



# Drinking Water Audit Report

<b>County:</b>	Cork	<b>Date of Audit:</b>	14/02/2019
<b>Plant(s) visited:</b>	Kealkill (Scheme Code 0500PUB4105)	<b>Date of issue of Audit Report:</b>	20/02/2018
		<b>File Reference:</b>	DW2009/355
		<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), as amended.</i></li> <li>• <i>The 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 has not complied with the EPA’s Regulation 16(1) Direction issued on the 5<sup>th</sup> of June 2015 to ensure that the drinking water supplied to consumers on the Kealkill public water supply complies with the trihalomethanes parametric value by the 31/12/2018.**
- ii. **In December 2018 Irish Water indicated that the upgrade works would be completed by March 2019. Irish Water confirmed at the audit that this date will not be met.**
- iii. **Irish Water should forward a copy of the Contractor’s Work Programme to the EPA and confirm the revised completion date of September 2019, without delay.**

## 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 to assess the performance of Irish Water in providing clean and wholesome drinking water and to determine compliance with the EPA’s Regulation 16(1) Direction. The Direction which was issued to Irish Water on the 5<sup>th</sup> of June 2015 required that the drinking water supplied to consumers complied with the trihalomethane parametric value no later than 31<sup>st</sup> December 2018.

The Kealkill Public Water Supply (PWS) supplies a population of 621 with a volume of approximately 317 m<sup>3</sup>/day. The source of the supply is the Owengar River. Treatment includes slow sand filtration and chlorination. The Kealkill PWS is on the EPA’s Remedial Action List for public water supplies (RAL) as a result of persistent trihalomethane failures.

The opening meeting commenced at 1.30pm at the Kealkill 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:**

Tommy Roche, Compliance Analyst

**Representing Cork County Council:**

Michael Russell, Acting Senior Executive Engineer

Pauline Mc Aree, Executive Engineer

Gerard Mc Sweeney, Water Curator

**Representing the Environmental Protection Agency:**

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.*

<b>1.</b>	<p><b>Source Protection</b></p> <ul style="list-style-type: none"> <li>a. The intake was not visited during the audit.</li> <li>b. There is a turbidity shutoff (15 minutes delay) on the raw water intake when the turbidity exceeds 3 NTU.</li> <li>c. The raw water turbidity at the time of the audit was 0.370 NTU.</li> <li>d. The river is very flashy. This results in the regular shutdown of the intake in response to the raw water turbidity alarm.</li> </ul>
<b>2.</b>	<p><b>Filtration</b></p> <ul style="list-style-type: none"> <li>a. There are 2 no. slow sand filters on site (one operational and one on standby).</li> <li>b. Slow Sand Filter No. 2 (circular filter) was in operation on the day of the audit.</li> <li>c. Turbidity monitoring takes place on both the raw water and final filtered water. Monitoring does not take place on the standby filter during filter ripening prior to the filter going online. The filter ripening is on a timed basis. Filter log book records confirm filter ripening during 2018 ranged from 6 to 10 days.</li> <li>d. The final water turbidity on the day of audit was 0.11 NTU.</li> <li>e. A copy of the procedure for cleaning of the slow sand filters was not available on site on the day of the audit but was received by the EPA on 19/02/19. Details of the cleaning and ripening periods were available in the slow sand filter log.</li> <li>f. The slow sand filters were resanded during August 2018 to a level of 800mm.</li> </ul>
<b>3.</b>	<p><b>Disinfection</b></p> <ul style="list-style-type: none"> <li>a. The water is disinfected using 10 -11% ultra low bromate sodium hypochlorite.</li> <li>b. Duty and assist chlorine dosing pumps are in place with automatic switchover. Chlorine dosing is flow proportional and linked to the residual chlorine monitor at the outlet from the reservoir.</li> <li>c. The target chlorine level is 0.9 to 1.0mg/l leaving the plant. The residual chlorine level on the day of the audit was 0.93 mg/l.</li> <li>d. The low level chlorine alarm is set at 0.55 mg/l and the high level alarm at 2.20 mg/l. Both chlorine alarms trigger automatic plant shutdown (10 minutes delay).</li> <li>e. The contact time provided is 40 mg.min/l.</li> <li>f. It was outlined that the disinfection system was being upgraded to include UV. Details of the</li> </ul>

	Irish Water protozoal compliance criteria for the supply were not available.
<b>4.</b>	<p><b>Treated Water Storage and Distribution Network</b></p> <p>a. The treated water reservoir is located on-site and provides 1.25 days storage. The reservoir was built in 2002 and was last cleaned in 2015. It will be cleaned following the completion of the upgrade works.</p> <p>b. Residual chlorine monitoring is undertaken in the network every day at the end of the line and recorded.</p>
<b>5.</b>	<p><b>Exceedances of the Parametric Values</b></p> <p>a. The most recent exceedance for the trihalomethanes parametric value had been notified to the EPA for a sample taken on 21/01/2019.</p>
<b>6.</b>	<p><b>Management and Control</b></p> <p>a. A detailed and up to date plant manual was available. Good record keeping was observed.</p> <p>b. There was good signage and labelling of all equipment at the WTP.</p>
<b>7.</b>	<p><b>Chemical Storage and Bunds</b></p> <p>a. All chemical storage areas were bunded.</p>
<b>8.</b>	<p><b>Progress in relation to Construction Works</b></p> <p>The proposed treatment plant upgrades to achieve compliance with the trihalomethane parametric value include the installation of dissolved air flotation (DAF), pressure filtration, UV disinfection and chlorination.</p> <p>The audit confirmed that site clearance works have taken place on site. Photographs were provided at the audit to demonstrate that fabrication of the DAF unit off site is underway.</p> <p>At the audit it was outlined the project completion date of March 2019 which had been provided in the December 2018 update would not be met. Irish Water indicated a revised date would be forwarded to the EPA. A revised estimated completion date of September 2019 was provided by Irish Water on 19/02/19.</p>

### 3. AUDITORS COMMENTS

The EPA issued a Regulation 16(1) Direction to Irish Water on the 5<sup>th</sup> of June 2015 directing that the Kealkill water supply be decommissioned or the water treatment plant upgraded, to ensure that the drinking water supplied to consumers complied with the trihalomethane parametric value, no later than 31<sup>st</sup> of December 2018.

A contractor has been appointed to undertake the treatment plant upgrade works. Site clearance works have taken place on site and the fabrication of elements of the new treatment plant infrastructure has commenced off site.

Irish Water has not complied with the Regulation 16(1) Direction. The monitoring results show that trihalomethanes persistently fail to comply with the parametric value of 100 µg/l and the upgrade works have not been completed to date.

In December 2018 it was outlined that the works would be completed by March 2019. It was confirmed at the audit that this completion date would not be met. A revised completion date could not be confirmed at the audit. However on 19/02/2019 Irish Water submitted a revised estimated completion date of September 2019.

## 4. RECOMMENDATIONS

### General

1. Irish Water should progress the planned upgrade works at the Kealkill Water Treatment Plant without delay to ensure that the drinking water supplied to consumers complies with the trihalomethanes parametric value of 100 µg/l as set out in the *European Union (Drinking Water) regulations 2014 (S.I. No. 122 of 2014), as amended*. Irish Water should provide quarterly updates to the Agency and notify it when works are complete.
2. Irish Water should forward a copy of the Contractor's Work Programme to the EPA and confirm the revised completion date of September 2019 for the planned upgrade works at the Kealkill Water Treatment Plant.

### Disinfection

3. Irish Water should provide details of the protozoal log requirement for the supply and the log credit prior to and following the proposed remedial works.

## FOLLOW-UP ACTIONS REQUIRED BY IRISH WATER

During the audit Irish Water representatives were advised of the audit findings and that the deadline for compliance with the Regulation 16(1) Direction had passed. The Agency will continue to monitor progress with the upgrade works to ensure compliance with the trihalomethane parametric value and further enforcement action may be considered. 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. **A response to audit Recommendation No. 2 is required within 2 weeks of this report.** 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:

20/02/2019

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Criona Doyle

Inspector