



# Drinking Water Audit Report

<b>County:</b>	Donegal	<b>Date of Audit:</b>	29 <sup>th</sup> March 2018
<b>Plant(s) visited:</b>	Cashelard Water Treatment Plant	<b>Date of issue of Audit Report:</b>	26 <sup>th</sup> April 2018
		<b>File Reference:</b>	DW2008/540
		<b>Auditors:</b>	Ms Derval Devaney
<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> <li>• The Regulation 10(4) Direction issued by the EPA on 11<sup>th</sup> December 2014 and associated Action Programme.</li> </ul>		

## MAIN FINDINGS

- i. Irish Water has not met the requirement of the EPA's Regulation 10(4)(c) Direction issued on 11<sup>th</sup> December 2014 and associated agreed Action Programme to address THMs failures in the Cashelard Public Water Supply (PWS) by 11<sup>th</sup> February 2017, as there is insufficient treatment at Cashelard Water Treatment Plant to prevent THMs formation.
- ii. The timeframe for the upgrade of the Ballyshannon PWS, which is the long-term solution to address the THMs failures at Cashelard PWS, is unknown at present.
- iii. The interconnector pipeline linking Cashelard PWS to the Ballymagroarty water supply was completed in March 2017. However, the Ballymagroarty supply is not being used to supply Cashelard as it also has THMs failures. The Cashelard PWS will not be made redundant until the Ballyshannon PWS is upgraded. Irish Water is progressing with air stripping treatment and possibly chloramination disinfection as an interim measure to address the THMs issue at Cashelard PWS. Irish Water propose to complete this work by December 2018.

## 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 progress with the EPA's Regulation 10(4) Direction issued to Irish Water on 11<sup>th</sup> December 2014 and subsequent Action Programme approved by the EPA on 11<sup>th</sup> February 2015 in accordance with Regulation 10(4) and 10(6) regarding compliance with the trihalomethanes (THMs) parametric value in the Cashelard public water supply.

The Cashelard Public Water Supply is on the EPA's Remedial Action List (RAL), as the supply has continuous THMs failures dating back to September 2008. The source of the supply is Lough Colmcille which is a peaty source where the colour varies seasonally. The raw water passes through a screening chamber at source for the removal of coarse material. Treatment at the plant consists of filtration (via one slow sand filter) and chlorination.

The opening meeting commenced at 12:25 pm at Cashelard 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:**

Yvonne McMonagle, Compliance Analyst; Martin Temple, Capital Programme Regional Lead.

**Representing Donegal County Council:**

Noel Mongan, Waterworks Inspector; John Gallagher, Water Works Inspector; Paul Lyons, Acting Senior Executive Engineer.

**Representing the Environmental Protection Agency:**

Derval Devaney, 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.*

### 1. Interim Solution

The interim solution as outlined in Irish Water's progress report dated 22<sup>nd</sup> December 2016 entails use of an alternative source by connecting the Cashelard PWS to the Ballymagroarty Water Supply and thereby making the Cashelard Water Treatment Plant (WTP) redundant.

The 1.9 km interconnector pipeline to Ballymagroarty Water Treatment Plant was completed in March 2017. However, the Ballymagroarty Water Supply also has THMs failures. The pilot remedial measure put in place at that plant (the installation of a carbon filter) proved unsuccessful and therefore it was decided to abandon this interim measure. Irish Water advised the Agency during the audit that the option of upgrading THM reduction treatment at Ballymagroarty Water Treatment Plant is no longer being pursued as the enduring long-term solution is now reactivated (see Point 2 below).

Other alternative interim options included of the installation of a temporary GAC filter system at Cashelard WTP which was relocated from the decommissioned Fintown WTP. Irish Water anticipated that this interim measure would restore compliance for THMs pending the completion of and connection to Ballyshannon PWS. For this reason, Irish Water previously proposed that the completion date be pushed forward to March 2018 on the understanding that this treatment option would be successful. However preliminary results obtained post installation indicated that the raw water organic loading is too high which resulted in the GAC media adsorption capacity being exhausted within days. Irish Water stated that maintaining the operation of this system would incur completely unsustainable operational costs. As a result, Irish Water concluded that this was no longer a viable treatment option for this supply.

Irish Water's most recent update, submitted to the EPA on 26<sup>th</sup> March 2018, was discussed during the audit. The interim measures now proposed are as follows:

- the piloting of an in-tank aeration system mid-April to assess the potential of reducing the levels of THMs in the final water;
- examining chloramination as a possible solution to deliver a reduction in THM levels. Consultants have been engaged to examine the practicality of this interim solution. Irish

	<p>Water propose that the initial projected completion date of December 2018 remains, on the assumption that the interim solution proves effective.</p>
<p><b>2.</b></p>	<p><b>Long-term Solution</b></p> <p>The long-term solution as outlined in the approved Irish Water Action Programme dated 11<sup>th</sup> February 2015 included:</p> <ul style="list-style-type: none"> <li>• Providing a new WTP at Ballyshannon abstracting from Assaroe lake;</li> <li>• Decommissioning of the existing Ballyshannon WTP;</li> <li>• New trunk main from Ballyshannon to Kilclane Reservoir to allow supply to Ballymagroarty, enabling the decommissioning of the existing Ballymagroarty WTP;</li> <li>• A new pipeline from Ballymagroarty to Cashelard to deliver the treated water from Ballyshannon, thus enabling the decommissioning of the existing Cashelard WTP.</li> </ul> <p>In accordance with Regulation 10(4) and 10 (6), the Action Programme submitted by Irish Water dated 30<sup>th</sup> January 2015 was amended and approved by the EPA on 11<sup>th</sup> February 2015 and directed Irish Water to complete the proposed upgrade works to ensure compliance with the THMs parametric value in the Cashelard PWS as soon as possible, but no later than 11<sup>th</sup> February 2017.</p> <p>Irish Water’s most recent update submitted to the EPA on 26<sup>th</sup> March 2018 stated Irish Water’s long term plan for the Cashelard supply is to connect to Ballyshannon remains and delays to the Ballyshannon project were out of Irish Waters control. The permanent measure of connecting to the Ballyshannon supply was contingent on receiving the agreement of the ESB regarding an abstraction consent and progress has now been made in this regard.</p> <p>During the audit, Irish Water stated that it proposes to replace Cashelard PWS with the Ballyshannon PWS once the Ballyshannon PWS is upgraded. The upgrade works to Ballyshannon WTP will now proceed and tender documentation are being readied for submission to the market.</p> <p>The initial projected completion date of December 2018 for the Cashelard supply was based on the understanding that upgrade works to Ballyshannon and connection to the amalgamated Cashelard-Ballymagroarty supply would be complete. Irish Water stated that construction timelines for the upgrade of the Ballyshannon PWS (which includes a new WTP at Ballyshannon and laying approximately 15 km of pipeline to connect to the Ballymagroarty Water Supply) are unknown at present but stated during the audit that it estimates it would take 24 months to complete the works.</p>
<p><b>3.</b></p>	<p><b>Water Quality - THMs Monitoring</b></p> <ol style="list-style-type: none"> <li>a) The audit found that THMs continue to persistently fail the parametric value of 100 µg/l as set out in the <i>European Union (Drinking Water) Regulations 2014 (S.I. 122 of 2014), as amended</i>.</li> <li>b) THMs are monitored monthly by Irish Water and the most recent THMs results for 2018 were reviewed during the audit. The THMS results were 314 µg/l on 22/01/18 and 294 µg/l on 19/02/18.</li> </ol>

### 3. AUDITORS COMMENTS

The EPA issued a Direction to Irish Water on 11<sup>th</sup> December 2014 requesting Irish Water to submit an Action Programme to address the persistent THMs failures in the Cashelard PWS.

In accordance with Regulation 10(4) and 10 (6), the Action Programme submitted by Irish Water dated 30<sup>th</sup> January 2015 was amended and approved by the EPA on 11<sup>th</sup> February 2015 and directed Irish Water to complete the proposed upgrade works to ensure compliance with the THMs parametric value in the Cashelard PWS as soon as possible but no later than 11<sup>th</sup> February 2017.

Irish Water plans to address the THMs issue in Cashelard PWS by installing interim measures (air stripping and chloramination) by December 2018. In parallel, the provision of a new WTP at Ballyshannon and trunk mains is

in progress which will enable the current water treatment plants at Ballyshannon, Ballymagroarty and Cashelard to be made redundant. However, the completion date for this work is unknown at present.

During the audit, it was evident that works to meet the Direction's timeframe was not met and the Cashelard PWS continues to fail to meet the THMs parametric value of 100 µg/l as set out in the *European Union (Drinking Water) Regulations 2014* (S.I. 122 of 2014), as amended.

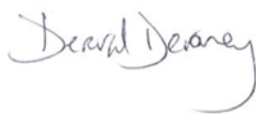
## RECOMMENDATIONS

1. Irish Water shall carry out the proposed upgrade works as soon as practicable to ensure that the Cashelard public water supply is compliant with the THMs parametric value of 100 µg/l as set out in the *European Union (Drinking Water) Regulations 2014* (S.I. 122 of 2014), as amended.
2. Irish Water shall report to the EPA on the progress and outcome of the interim measures and carry out monitoring for THMs following completion of the works to verify its success.
3. Irish Water shall continue to update the EPA on a quarterly basis on the progress with the long-term measure of upgrading the Ballyshannon PWS and connection to the Ballymagroarty and Cashelard PWS. Irish Water shall submit a timeframe for completion of these works as soon as practicable and no later than the 31<sup>st</sup> December 2018.
4. Irish Water shall carry out monitoring for THMs once the long-term works are complete to verify the effectiveness of the actions undertaken and submit the results to the EPA.

## FOLLOW-UP ACTIONS REQUIRED BY IRISH WATER

During the audit, Irish Water representatives were advised of the audit findings and that there was a breach in meeting the legal requirements of the Regulation 10(4)(c) Direction issued by the EPA on 11<sup>th</sup> December 2014 and as a result further enforcement action would follow. This report has been reviewed and approved by Ms Aoife Loughnane, Drinking Water Team Leader.

**Report prepared by:**



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Derval Devaney  
Inspector

**Date:**

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26<sup>th</sup> April 2018