



Drinking Water Audit Report

County:	Cork County	Date of Audit:	19/02/2019
Plant(s) visited:	Drimoleague (Scheme Code 0500PUB4103)	Date of issue of Audit Report:	19/03/2019
		File Reference:	DW2009/350
		Auditors:	Ms Criona Doyle
Audit Criteria:	<ul style="list-style-type: none"> • The <i>European Union (Drinking Water) Regulations 2014 (S.I. 122 of 2014) as amended.</i> • <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> • 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. Irish Water has not complied with the EPA’s Regulation 16(1) Direction, issued on the 5th of June 2015, to ensure that the drinking water supplied to consumers on the Drimoleague public water supply complies with the trihalomethanes parametric value by the 31st of December 2018.
- ii. Irish Water is progressing construction works that will allow the decommissioning of the Drimoleague Water Treatment Plant and connection to the Skibbereen Regional Water Supply Scheme (RWSS). Irish Water have advised the EPA that the Projected Date of Completion of the works is Quarter 2 2020 which is beyond the Direction deadline of 31st December 2018.
- iii. Irish Water should progress the installation of the containerised pressure filter, GAC and UV disinfection system to ensure an adequate barrier to *Cryptosporidium* is provided until the Drimoleague Water Treatment Plant is decommissioned.

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 5th of June 2015, required that the drinking water supplied to consumers complied with the trihalomethanes (THM) parametric value no later than 31st December 2018.

The Drimoleague Public Water Supply (PWS) supplies a population of 629 with an average daily volume of 338m³/d. The source of the supply is the Ilen River. Treatment includes slow sand filtration and

chlorination. The Drimoleague PWS is on the EPA's Remedial Action List for public water supplies (RAL) as a result of persistent trihalomethanes failures.

The opening meeting commenced at 10.30am at the Drimoleague Water Treatment Plant (WTP). 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 McAree, Executive Engineer

Seamus Sutton, Executive Engineer

Michael Russell, 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.

1.	<p>Source Protection</p> <ul style="list-style-type: none"> a. There are 2 surface water intakes from the River Ilen (eastern & western). The intakes were not visited during the audit due to access difficulties. The raw water is piped to the settling tank at the water treatment plant. There are two turbidity monitors on the raw water. b. Catchment surveys were last undertaken in 2014. c. A map showing the buffer zones for the western intake as required under the European Union (Good Agricultural Practice for the Protection of Waters) Regulations 2014 (S.I No. 31 of 2014) was available at the audit. A copy of the map for the eastern intake was forwarded by Irish Water to the EPA on 22/02/19 following the audit. d. A <i>Cryptosporidium</i> Risk Score of 85.5 (high risk) was provided at the audit while a risk score of 119 is reported on EDEN.
2.	<p>Filtration</p> <ul style="list-style-type: none"> a. Water from the settling tank flows into the splitter chamber which divides the flow between the 2 no. slow sand filters on site. b. The depth of sand in the filters is currently 750mm. A minimum of 500mm is maintained at all times. c. The filters are skimmed based on head loss every 4 to 6 weeks. Microbiological testing is carried out to confirm maturation of the filter before the filters are brought back on line. The recorded results were viewed on site. d. On the day of the audit the filtered water turbidity was 0.09 NTU in Filter No. 1 and 0.07 NTU in Filter No. 2. e. There is an automatic shutdown of the filtered water, on each individual filter, if the turbidity exceeds 0.4 NTU (15 minutes delay). f. Six months of turbidity trend data (August 2018 – January 2019) for the raw and final treated water (Filters No. 1 & No. 2) was reviewed on site.

	<p>g. The filtered water is split into two streams for disinfection, the Castledonovan and Drimoleague supplies.</p>
3.	<p>Disinfection</p> <p>a. The water is disinfected using 10 -11% ultra-low bromate sodium hypochlorite.</p> <p>b. A separate day tank and set of chlorine dosing pumps are provided for the feed to (1) Castledonovan Reservoir and (2) Drimoleague Reservoir. Duty and assist chlorine dosing pumps are in place for both portions of the supply. There is automatic switchover of the duty and assist pumps on a 6 hourly basis.</p> <p>c. Chlorine dosing is flow proportional and linked to the residual chlorine monitor at each reservoir and the signal sent back to the pump house at the Drimoleague WTP.</p> <p>d. The low-level chlorine alarm is set at 0.55mg/l with automatic shutdown of the supply after 15 minutes delay.</p> <p>e. The high chlorine alarm is set at 1.5 mg/l for the Castledonovan Reservoir and 2.0mg/l for the Drimoleague Reservoir both linked to automatic plant shutdown (15 minutes delay).</p> <p>f. The alarms operate on a cascade system to 3 no. staff.</p> <p>g. The Drimoleague WTP is not on the Cork County Disinfection Programme as the supply is due to be rationalised and replaced by the Skibbereen RWSS.</p> <p>h. The target residual chlorine level from the Drimoleague reservoir is 1 to 1.3 mg/l and 0.9 to 1.1 mg/l for Castledonovan.</p> <p>i. The residual chlorine level from the Castledonovan reservoir, on the day of the audit, was 1.01mg/l.</p> <p>j. The contact time provided is 50.80mg.min/l for Castledonovan and 56 mg.min/l Drimoleague.</p> <p>k. The date of manufacture was provided on the 25 L sodium hypochlorite drums (03/12/18) but an expiry date was not provided on the drums.</p>
4.	<p>Treated Water Storage and Distribution Network</p> <p>a. There are 2 no. reservoirs on site supplied from the Drimoleague WTP. The Castledonovan Reservoir is located adjacent to the WTP and was visited during the audit. The Drimoleague Reservoir was not visited.</p> <p>b. The reservoirs were last cleaned in March 2016.</p> <p>c. Monitoring of the residual chlorine level is undertaken three times per week at the end of the network.</p> <p>d. Maintenance flushing to help reduce the levels of trihalomethanes in the network is undertaken four times per year.</p>
5.	<p>Exceedances of the Parametric Values</p> <p>a. <i>Cryptosporidium</i> was detected in the final treated water in a sample on 25/04/2018. There have been no further detections of <i>Cryptosporidium</i> in the final treated water. Monthly monitoring of <i>Cryptosporidium</i> and <i>Giardia</i> is taking place.</p> <p>b. The historic <i>Cryptosporidium</i> and <i>Giardia</i> monitoring results were provided at the audit. Previous monitoring included 1 round of sampling on the following dates: 11/05/09; 30/04/13; 28/05/14; 20/10/15; 11/05/16; 26/04/17. There were no detections in the treated water prior to 2018.</p> <p>c. Monthly monitoring of trihalomethanes is being carried out until the upgrade works have been completed. The most recent exceedance for the trihalomethanes parametric value notified to the EPA was for a sample taken on 23/01/2019 (result 104 µg/l).</p>
6.	<p>Chemical Storage and Bunds</p> <p>a. All chemical storage areas were bunded. There was a build-up of liquid observed in the sodium hypochlorite day tank bund.</p>
7.	<p>Management and Control</p> <p>a. A detailed and up to date plant manual was available. Good record keeping was observed.</p>
8.	<p>Progress in relation to Remedial Works for THMs</p> <p>a. The supply is on the EPA's Remedial Action List (RAL) for inadequate treatment for</p>

	<p>trihalomethanes. The treatment plant is to be decommissioned and connected to the Skibbereen RWSS by Quarter 2 2020. At the audit, it was confirmed that the contract for the upgrade works was signed in November 2018 and the design work is progressing. It was outlined at the audit that the works associated with the construction of the section of the network from Skibbereen to Drimoleague is expected to be the first network element of the contract.</p> <p>b. A UVT monitor has been installed to monitor the raw water quality and 9 months of data has been compiled. The proposed interim works to ensure an adequate barrier against <i>Cryptosporidium</i> include the installation of a containerised pressure filter, GAC and UV disinfection with a completion date of June 2019. All verification data will be submitted to the EPA by the end of Q3 2019.</p>
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3. AUDITORS COMMENTS

Irish Water has not complied with the EPA's Regulation 16(1) Direction, issued on the 5th of June 2015. The direction required that the Drimoleague Water Treatment Plant be decommissioned and the supply replaced with water from the Skibbereen WTP or an alternative supply or the plant upgraded to ensure it complies with the trihalomethanes parametric value by the 31st of December 2018.

The Drimoleague WTP has not been decommissioned to date and the monitoring results show trihalomethanes levels continue to exceed the parametric value of 100 µg/l. Irish Water should progress the planned connection to the Skibbereen Regional Water Supply Scheme without delay to ensure that the drinking water supplied to consumers complies with the trihalomethanes parametric value.

Irish Water should progress the interim works required to ensure an adequate barrier to *Cryptosporidium* is provided which include the installation of the containerised pressure filter, GAC and UV disinfection system without delay.

Good record keeping and documentation was observed during the audit.

4. RECOMMENDATIONS

General

1. Irish Water should progress the planned connection to Skibbereen RWSS without delay to ensure that the drinking water supplied to consumers complies with the trihalomethanes parametric value. The current completion date given by Irish Water of Quarter 2 2020 goes beyond the compliance deadline of 31st of December 2018 stated in the Direction issued by the EPA under Regulation 16(1) of the European Union (Drinking Water) Regulations 2014. The Agency will continue to monitor progress with the works to ensure compliance with the trihalomethanes parametric value and further enforcement action may be considered.
2. Irish Water should progress the installation of the containerised pressure filter, GAC and UV disinfection system to ensure an adequate barrier against *Cryptosporidium* and provide quarterly updates to the EPA on works progress. Irish Water should continue to forward the results of monthly monitoring for *Cryptosporidium* and *Giardia* as part of the Irish Water quarterly updates and keep the EPA informed of any changes to the HSE advice.
3. Irish Water should update the *Cryptosporidium* risk score on EDEN.

Chemical Storage and Bunds

4. Irish Water should ensure that the bund on the chlorine day tank is cleaned out and any build-up of liquid in the bund is removed.

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 works to ensure compliance with the trihalomethanes 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. 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:

19/03/2019

Inspector