Drinking Water Audit Report

County:	Tipperary	**Date of Audit:**	28/05/19
Plant(s) visited:	Borrisokane Water Supply (Scheme Code 2800PUB1002)	**Date of issue of Audit Report:**	10/06/19
		File Reference:	DW2019/99
		Auditor:	Criona Doyle
Audit Criteria:	• The *European Union (Drinking Water) Regulations 2014 (S.I. 122 of 2014) as amended*. • *The EPA Handbook on the Implementation of the Regulations for Water Services Authorities for Public Water Supplies (ISBN: 978-1-84095-349-7)* • The recommendations specified in the EPA *Drinking Water Report*. • EPA Drinking Water Advice Notes No.s 1 to 15.		

MAIN FINDINGS

i. **Irish Water should assess the integrity of the cover on the spring collection chamber to ensure it provides adequate protection of the source and undertake any required remedial measures.**
ii. **The site has been assessed by Irish Water under the County Tipperary Disinfection Programme. Irish Water is currently finalising the proposed upgrade works which are expected to be completed in 2020.**

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.

The average daily volume of water provided is of the order of 814 m^3/d serving a population of 1,752 (EDEN data). The supply serves the town of Borrisokane and the surrounding area including Carrigahorig and Aglish. The raw water is obtained from a spring located on the treatment plant site. Treatment at the plant consists of aeration, chlorination and fluoridation.

Photographs taken by Criona Doyle during the audit are attached to this report and referred to in the text where relevant.

The opening meeting commenced at 2pm at the Borrisokane 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 audit 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.

Catherine Rice, Compliance Analyst.

Colm Cunningham, Water Engineer.

Representing Tipperary County Council:

Aidan Delaney, Executive Scientist.

Martin McMahon, Caretaker.

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.	**Source Protection** a. A cover is present over the spring collection chamber which provides some protection of the spring. On the day of the audit material was visible floating on the water surface (Photo No. 1). Following the audit (30/05/19) Irish Water confirmed the material was grass seed as a result of grass cutting. b. The site is surrounded by agricultural land used for pasture. Sheep and cattle were observed grazing on the surrounding land on the day of the audit. c. Adjacent landowners were informed of their obligations under the GAP regulations [European Union (Good Agricultural Practice for the Protection of Waters) Regulation 2014 (S.I. No. 31 of 2014)] in 2009. The caretaker monitors activities within the buffer zones. d. A raw water monitoring programme is in place with monitoring taking place 3 times per year. e. The EPA's EDEN system indicates that there is no turbidity monitor at the site. f. The *Cryptosporidium* risk score was completed in 2009 with a risk score of 66 (moderate risk). g. The site is well fenced and secure. h. The raw water undergoes aeration but the reason for the aeration stage could not be confirmed at the audit.
2.	**Disinfection** a. The site has been assessed under the County Tipperary Disinfection Programme. The workshop was completed two weeks previously. Irish Water outlined that disinfection upgrades are currently being examined including the replacement of chlorine gas with sodium hypochlorite. b. On the day of the audit the residual chlorine level was 0.89 mg/l. The target chlorine dose is 0.9 to 1.0mg/l to achieve a chlorine residual of 0.1mg/l at the end of the network. c. Chlorine gas is used for chlorination. d. The chlorine dosing is fixed as the volume of water pumped is fixed and the chlorine demand is stable. Duty and standby chlorine dosing pumps are installed on site. There is automatic switch over between the duty and standby pump in the event of malfunction of the duty pump. e. The residual chlorine monitor was within the service due date (next due 18/07/19). f. The residual chlorine monitor is located at the WTP which is located before contact time is being completed. There is no residual chlorine monitor present after the reservoir which is located approximately 1km from the WTP. g. The low-level chlorine alarm is set at 0.5 mg/l and high-level alarm at 1.2 mg/l. There is automatic shutdown of the supply in response to chlorine alarms. The time delay between

	the alarm being triggered and auto shutdown of the plant could not be confirmed at the audit. h. A text alert is sent to the duty and standby caretakers and the supervisor for the area in response to chlorine alarms. i. A contact time of 98.48 mg.min/l was provided at the audit which excludes the additional time achieved in the rising main to the reservoir. j. It was outlined at the audit that there have been no recent chlorine alarms.
3.	**Treated Water Storage and Distribution Network** a. The treated water storage reservoir is located in Borrisokane and was not visited as part of the audit. The reservoir was constructed in 1987 and there is no record of it being cleaned since the scheme was built. b. The results of monitoring of the residual chlorine levels at the end of the distribution line were not available on the day of the audit as the monitoring is undertaken by a different caretaker.
4.	**Chemical Storage and Bunds** a. Separate locked chemical storage cages are provided for the storage of the full and empty chlorine gas canisters
5.	**Hygiene and Housekeeping** a. The site was clean and tidy.
6.	**Management and Control** a. A copy of the documented chlorine alarm response procedure was not available on site. b. The sticker on the fluoride monitor indicated the calibration was past the due by date of February 2018. The caretaker indicated that the unit had been calibrated but was unable to confirm the date of calibration at the audit.

3. AUDITORS COMMENTS

The treatment plant was found to be well operated with good record keeping maintained by the caretaker.

On the day of the audit material was observed floating on the water surface of the covered spring collection chamber. The presence of floating material indicates a potential issue with the integrity of the cover which should be examined and any necessary remedial measures undertaken to ensure the safety and security of the supply.

While the caretaker was familiar with the alarm response procedure a copy of the documented procedure should be maintained on site.

The site has been assessed by Irish Water under the County Tipperary Disinfection Programme. The proposed upgrade works are currently being finalised. An exact date for completion of the works is not currently available. It was outlined at the audit that the works are expected to be completed in 2020.

4. RECOMMENDATIONS

Source Protection

1. Irish Water should assess the integrity of the cover on the spring collection chamber to ensure it provides adequate protection of the source and undertake any required remedial measures.
2. Irish Water is requested to confirm if there is an online turbidity monitor in place at the WTP and provide details of the turbidity alarm set point.

Disinfection

3. Irish Water should ensure that the residual chlorine monitor is located at a suitable location after contact time has been achieved.
4. Irish Water should confirm the time delay on the auto shutdown of the supply linked to the

chlorine alarm.

5. Irish Water should ensure that a minimum of 0.1 mg/l free residual chlorine is maintained at the end of the distribution network. It is recommended that monitoring of the residual chlorine is undertaken several times a week at different points on the network to include the network extremities. Irish Water should submit the results of network residual chlorine monitoring undertaken for the last month.

Treated Water Storage and Distribution Network

6. Irish Water should confirm that the supply is on the Irish Water Reservoir Cleaning Programme.

Management and Control

7. Irish Water should ensure a copy of the documented procedure for the chlorine alarm response procedure is maintained on site and ensure that all staff are familiar with the protocol.
8. Irish Water should confirm the date of calibration of the fluoride monitor and ensure that service / calibration stickers on the fluoride monitoring equipment are displayed and kept up to date.

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 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: Fiona Doyle **Date:** 10/06/19

Inspector

Photograph No. 1: Floating debris visible inside covered collection chamber