Drinking Water Audit Report

County:	South Tipperary	**Date of Audit:**	28th May 2014
Plant visited:	Graigue (2900PUB0205)	**Date of issue of Audit Report:**	
		File Reference:	DW2008/374
		Auditor:	Nigel Hayes
Audit Criteria:	• The *European Union (Drinking Water) Regulations 2014 (S.I. 122 of 2014).* • *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 Report on *The Provision and Quality of Drinking Water in Ireland*. • The recommendations in any previous audit reports.		

MAIN FINDINGS

i. **The plant is managed and operated to a high standard. However, as no out of hours alarm response procedure is in place, consumers are not being adequately protected between the hours of 8pm and 8am.**
ii. **The supply is at high risk of *Cryptosporidium* contamination and the quality of the source water is highly variable.**

1. INTRODUCTION

Under the *European Union (Drinking Water) Regulations 2014* 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 21st May 2014, of the failure to meet the *E.coli* parametric value as specified in Table A of Part 1 of the Schedule of the Regulations and the subsequent imposition of a boil water notice in the Graigue PWS. The boil water notice was subsequently lifted on 23rd May 2014. Where the text refers to the Water Service Authority this refers to Irish Water in accordance with Section 7 of the Water Services (No. 2) Act 2013.

Approximately 1,200 consumers are served by this supply. The plant is fed by the Graigue stream, which originates from an upland peaty catchment and is highly variable in nature. Chlorination is the only treatment process currently in operation at the plant. However, as the supply is considered to be at high risk of *Cryptosporidium* contamination, it is currently on the EPA's Remedial Action List as there is no *Cryptosporidium* barrier in place. Ultimately, this supply will be replaced with the Clonmel RWSS. Interim works are also planned which will include the development of a nearby borehole source and the construction of a contact tank and rising main. However, Irish Water has stated that it is currently not in a position to provide timeframes for the completion of this work.

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

The opening meeting commenced at 10.30am at Graigue 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:

Name – Job Title

Liam Brett – Water Engineer, Irish Water

Deirdre O'Loughlin – Assistant Scientist, South Tipperary County Council

John Crowley – Senior Executive Engineer, South Tipperary County Council

Joe Burke – Executive Engineer, South Tipperary County Council

Aine Butler – Process Control Technician, South Tipperary County Council

Pat McCarthy – Caretaker, South Tipperary County Council.

Representing the Environmental Protection Agency:

Name – Job Title

Nigel Hayes – Inspector

Kamal Tribak – Observer (JobBridge Intern)

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. Forestry is the predominant land use in the catchment. The environment section of South Tipperary County Council liaise regularly with Coillte to ensure that the treatment plant operators are notified prior to the commencement of any felling activity in the catchment. b. An air compressor operates every 15 minutes to remove any debris blocking the intake screen. c. The caretaker visits the plant on a daily basis.
4.	**Chlorination and Disinfection** a. Disinfection is achieved using 13/14 % sodium hypochlorite and chlorine dosing is linked to a residual chlorine monitor. b. All chlorine dosing in the supply is residual based. c. A duty chlorine dosing pump and a booster chlorine dosing pump are in place at the plant. The booster pump operates when the chlorine residual drops below 0.5 ppm. d. An additional chlorine duty pump is in operation post reservoir to ensure that the chlorine levels are within the pre-set limits. e. Total and free chlorine are measured in the network on a daily basis and these results determine the chlorine dosing settings on all pumps.
5.	**Treated Water Storage** a. Two access hatches on the reservoir were unsecured and unlocked. b. An air vent on the reservoir was damaged (see Photograph 1).

	c. The reservoir was completely covered by vegetation and tree growth was observed adjacent to the reservoir. d. The reservoir has never been integrity tested.
9.	**Hygiene and Housekeeping** a. The plant was clean, tidy and well maintained.
10.	**Management and Control** a. The plant is secured with palisade fencing and a locked access gate (see Photograph 2). b. A raw water turbidity meter is in place at the intake and the readings are linked to scada. c. The distribution network is scoured at least once a week. d. No *cryptosporidium* monitoring has been carried out in 2014. However, historical monitoring has not detected any oocysts in the supply. e. A power cut on Monday evening 19th May 2014 at approximately 6pm, caused the PCU that regulates chlorine dosing to cut out. The PCU didn`t restart, resulting in a failure of the duty pump. The booster pump, which is set to cut in at 0.5ppm and out at 1.2ppm, continued to operate. However, there was no chlorine registered in the treated water from about 4am to 8am on 20th May 2014, which was most likely due to an increase in chlorine demand following heavy rainfall. The caretaker received a low chlorine alarm text alert at approximately 8:10 pm on 19th May 2014. However, there is currently no procedure in place for out of hours alarm responses between the hours of 8pm and 8am. Therefore, the caretaker responded to the alarm at 8am on 20th May.

3. AUDITORS COMMENTS

The plant is managed and operated to a high standard. However, as no out of hours alarm response procedure in place, consumers are not being adequately protected between the hours of 8pm and 8am. The supply is at high risk of *cryptosporidium* contamination and the quality of the source water is highly variable. Irish water should ensure that works to replace the supply with an alternative source are progressed as a matter of urgency and that practices and procedures are implemented to ensure that consumers are supplied with safe and secure water at all times.

4. RECOMMENDATIONS

Treated Water Storage

1. The Water Services Authority should carry out an integrity assessment of reservoir to ensure that there is no ingress into the reservoir.

2. The Water Services Authority should ensure that all vents on the reservoir are secured against ingress of animals or deliberate introduction of any contaminant or acts of vandalism.

3. The Water Services Authority should ensure that sealed and lockable hatches are installed on all inspection points on the reservoir.

4. The Water Services Authority should remove all vegetation from the sides and cover of the reservoir to ensure that the reservoir can be visually inspected on all sides and also prevent damage to the integrity of the reservoir.

Management and Control

5. The Water Services Authority should ensure that works to replace the supply with an

alternative source are progressed as a matter of urgency and that timeframes of the completion of said works is provided.

6. The Water Services Authority should implement plant practices and procedures to ensure that consumers are supplied with safe and secure water at all times.

FOLLOW-UP ACTIONS REQUIRED BY IRISH WATER

During the audit the Water Services Authority representatives were advised of the audit findings and that action must be taken as a priority by the Water Services Authority to address the issues raised. This report has been reviewed and approved by Ms Yvonne Doris, Drinking Water Team Leader.

The Water Services Authority 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: Nigel Hayes **Date:** 24th June 2014

Nigel Hayes

Inspector

Photograph 1: Damaged vent on reservoir

Photograph 2: Secure fencing and locked access gate at the plant.