Drinking Water Audit Report

County:	Laois	**Date of Audit:**	10th May 2018
Plant visited:	La Bergerie water treatment plant Portarlington Public Water Supply (1600PUB1100)	**Date of issue of Audit Report:**	1st June 2018
		File Reference:	DW2015/154
		Auditors:	Aoife Loughnane Michelle Roche
Audit Criteria:	• The *European Union (Drinking Water) Regulations 2014 (S.I. 122 of 2014) and 2017 (S.I. 464 of 2017).* • *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*.		

MAIN FINDINGS

i. **The safety and security of Portarlington public water supply has been significantly improved by the upgrade of La Bergerie water treatment plant to provide new borehole pumps & linings, pressure filters, new chlorine and fluoride storage and dosing equipment and a SCADA control system. The plant is now operating to a very high standard and capable of removing the elevated manganese & turbidity levels in raw water which had previously caused drinking water quality exceedances in the Portarlington supply.**

ii. **Despite the recent plant upgrade and reservoir cleaning, there are still a high number of complaints regarding discoloured water at consumers taps. There is a lack of headroom to undertake uni-directional flushing in the distribution network due to flow restrictions caused by the size and condition of the rising main between La Bergerie water treatment plant and Corrig Hill Reservoir. Irish Water should identify a solution to allow cleaning of the distribution network in a systematic manner.**

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 in the Portarlington public water supply (PWS).

Portarlington PWS is supplied by three boreholes at La Bergerie water treatment plant. Treatment was previously provided by disinfection only, which was inadequate to deal with elevated manganese and turbidity in the raw water. The plant was upgraded in 2017 and now provides pH adjustment, pressure filtration, chlorination & fluoridation. The plant supplies 1,164 m^3/day and serves a population of 5,632 people. La Bergerie water treatment plant is operated by Veolia on behalf of Irish Water.

The opening meeting commenced at 10:00 at La Bergerie 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: Andrew Boylan - Compliance Specialist Aodhnait Ní Cathasaigh - Compliance Analyst John Gavin - SLA Lead **Representing Laois County Council:** Michael O'Hora - Senior Engineer Des Byrne - Assistant Engineer John Cummins - Water Caretaker Brendan Garry - General Services Supervisor **Representing Veolia:** Catherine Furey - Plant Manager **Representing the Environmental Protection Agency:** Aoife Loughnane - Inspector Michelle Roche - 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. The three borehole sources are located at the treatment plant. b. The borehole protection examined during the audit was very good. New borehole pumps and linings were installed in 2017. The borehole casings are above ground level on a concrete plinth, the boreholes are well sealed and capped, and housed within locked kiosks. c. There are turbidity monitors on each borehole source, and on the combined raw water (1.04 NTU during the audit). These monitors are all linked to the SCADA control system.
2.	**Filtration** a. The raw water undergoes pH adjustment by sodium hydroxide dosing. There are also ferric chloride coagulant dosing arrangements in place but these are not currently in use. b. The raw water undergoes filtration in three pressure filters which contain a mixture of sand and anthracite media. The filters operate in parallel with all three in operation at any time. There is adequate capacity for two filters to handle the full flow while the third filter is undergoing a backwash. c. The filters are backwashed based on head-loss, turbidity set-point (2 NTU) or time (every 27 hours) using filtered water. Backwash is usually triggered based on time. d. There are turbidity monitors on each pressure filter, on the combined filtered water (0.38 NTU during the audit) and on the final water (0.12 NTU during the audit).
3.	**Disinfection** a. Sodium hypochlorite (10%) is used as the disinfectant on the supply. It is dosed flow proportionally with duty and standby dosing pumps in place. There is automatic switchover between the duty and standby dosing pumps. b. There is a chlorine residual monitor (with double validation) and alarm in place on the disinfection system and these controls are linked to SCADA. c. The target chlorine residual leaving the plant is 0.5 mg/l. At the time of the audit the chlorine monitors were reading 0.53 and 0.48 mg/l.

	d. The low warning alarm setting is 0.3 mg/l and if the level drops to 0.25 mg/l, the plant automatically shuts down. The high warning alarm setting is 1.1 mg/l, with shutdown if levels rise to 1.2 mg/l.
4.	**Treated Water Storage** a. Treated water is pumped to Corrig Hill reservoir which was visited during the audit. There are two reservoirs at this location, a high level and lower level reservoir. Both reservoirs were cleaned in Q1 2018.
5.	**Management and Control** a. La Bergerie water treatment plant is operated by Veolia on behalf of Irish Water. The plant is managed remotely via the SCADA control system, and the plant manager visits the plant 2-3 days each week. b. Plant alarms dial out to 4 operators via a cascade system. In the event of an incident, the response time for an operator to reach the plant is within 2 hours. There is automatic shutdown of the plant in the event of a failure of the disinfection system. c. While La Bergerie treatment plant has the capacity to produce 100 m^3/hr, the pumped flow to the reservoir is restricted to 70 m^3/hr because of the size and condition of the rising main between the treatment plant and the reservoir. d. During the audit, it was reported that a high number of complaints are still being received about discoloured water at consumers taps. It is not possible to undertake a programme of uni-directional flushing in the distribution network because there is difficulty in achieving the required operational pressure due to flow capacity restrictions caused by the rising main between the treatment plant and reservoir. e. The DMAs in the water supply zone are currently being reconfigured. This has resulted in some changes in direction of flow of the water supply, which may have caused agitation of sediment in the distribution pipes. Flushing is currently undertaking at various network locations in response to complaints, but not in a systematic manner.

3. AUDITORS COMMENTS

The safety and security of Portarlington public water supply has been significantly improved by the upgrade of La Bergerie water treatment plant. The audit found that the plant is operating to a very high standard and capable of removing the elevated manganese and turbidity levels in raw water which had previously caused drinking water quality exceedances in the Portarlington supply.

Despite the recent plant upgrade and cleaning of Corrig Hill Reservoir, there are still a high number of complaints regarding discoloured water at consumers taps. There is a lack of headroom to undertake uni-directional flushing in the distribution network due to flow restrictions caused by the size and condition of the rising main between La Bergerie water treatment plant and Corrig Hill Reservoir. Irish Water should identify a solution to allow cleaning of the distribution network in a systematic manner.

4. RECOMMENDATIONS

1. Irish Water should assess the feasibility of upgrading the rising main from La Bergerie water treatment plant to Corrig Hill Reservoir in order to ensure there is sufficient capacity to undertake uni-directional flushing in the distribution network, and to meet the future needs of Portarlington public water supply.

2. Irish Water should implement a regular programme of flushing and scouring of the mains.

3. Irish Water should investigate why the combined filtered water turbidity was reading 0.38 NTU during the audit, compared to the final water turbidity of 0.12 NTU.

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 Michelle Minihan, Senior Inspector, Drinking Water Team.

Irish Water is recommended to put such measures in place as are necessary to implement the recommendations listed in this report. The actions by Irish Water to address the recommendations taken will be verified by the EPA during any future audits.

Please quote the File Reference Number in any future correspondence in relation to this Report.

Report prepared by:  **Date:** 1st June 2018

Inspector