Drinking Water Audit Report

County:	Co. Longford	**Date of Audit:**	20th August 2014
Plant(s) visited:	Lanesborough PWS Scheme Code 2000PUB1009 ESB and Lisrevagh Boreholes	**Date of issue of Audit Report:**	27th August 2014
		File Reference:	DW2014/287
		Auditors:	Ms Ruth Barrington Ms Aoife Loughnane
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.*		

MAIN FINDINGS

i. **The Lanesborough PWS is supplied by three boreholes; the ESB borehole and two boreholes at Lisrevagh. Water abstracted from the ESB borehole receives disinfection by chlorination. Water abstracted from the two Lisrevagh boreholes receives disinfection by UV treatment and chlorination. Water from all three boreholes is mixed in supply at the Carrowroe reservoir.**

ii. **Wellhead protection at each of the boreholes should be improved to include capping/seals on each borehole.**

iii. **Source protection work is carried out by the Environment Section of Longford County Council and maintained at Council Head Office. Information on catchment pressures and risks should be available at each disinfection plant to inform operators.**

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 to assess the performance of Irish Water in providing clean and wholesome drinking water.

Where the text refers to the Water Services Authority, this refers to Irish Water in accordance with Section 7 of the Water Services (No. 2) Act 2013.

The Lanesborough Public Water Supply is supplied by groundwater abstracted from three boreholes. The main borehole which is pumped continuously is the ESB borehole, drilled in 1980 by ESB but operated and maintained by Longford County Council (now by Irish Water). This is augmented by two additional boreholes at Lisrevagh. The old Lisrevagh borehole was drilled in 1988 (approximately) and the new Lisrevagh borehole was drilled in May 2006. Together the three boreholes produce 2,300 m^3/day treated water.

The opening meeting commenced at 3.30 p.m. at the ESB borehole source for the Lanesborough PWS. 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:

Mr Barnard Kroon – Senior Executive Engineer, Longford County Council
Mr Noel Madden – Executive Engineer, Longford County Council
Mr Bernard Naughton – Technician, Longford County Council
Mr Eugene Kelly – Caretaker, Longford County Council
Mr Shane Tynan – Water Engineer, Irish Water

Representing the Environmental Protection Agency:

Ms Ruth Barrington – Inspector
Ms Aoife Loughnane – 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 supply is fed from the main borehole "ESB borehole" at Lanesborough (approx. 1,800 m^3/day) and the two secondary boreholes at Lisrevagh. The latter are mainly pumped at night and have lower abstraction rates. There was no information available at the plant on borehole logs or construction.

b. The ESB borehole is located in the compound of the Lanesborough ESB plant. It was thought that groundwater flows away from the ESB site and towards the borehole and that therefore the ESB site may pose a risk of contamination to the borehole.

c. The Lisrevagh boreholes are located in a rural area about 5 km from the ESB site. Activities in the area would appear to be largely agricultural. A dwelling house, farm, slatted house and silage storage are located in close proximity to the boreholes and disinfection plant.

d. The ESB borehole is located in a secure but unroofed area. The borehole itself is capped, but there is a hole in this for cabling, which is unsealed (refer to photograph Ref. 016.jpg).

e. The new Lisrevagh borehole is located within a kiosk but is uncapped. The kiosk itself is not sealed. The old Lisrevagh borehole was not visited as part of the audit but the audit team was informed that it was in similar condition to the new Lisrevagh borehole.

f. Information on catchment investigations or protection activities was not available on-site, including details of whether the *European Union (Good Agricultural Practice for the Protection of Waters) Regulations 2014 (SI No. 31 of 2014)* were being complied with. This work is undertaken by the Environment Section of Longford County Council and the information is held at the Council offices.

2.	**Chlorination and Disinfection** a. Water abstracted at the ESB Borehole receives disinfection via chlorination only. b. Water abstracted at the Lisrevagh boreholes undergoes UV treatment and chlorination. c. The chlorination systems at the ESB borehole and Lisrevagh boreholes were upgraded about three years ago from chlorine gas to sodium hypochlorite. d. Chlorination at both plants is at fixed rates. Chlorine residual alarms are communicated by text and email to the caretaker, relief caretaker and a cascade system for response. e. The current disinfection alarm response procedure covers initial call out to the alarm, but has not been fully outlined, for example to cover escalation of an alarm in an emergency situation where there is a risk of un-disinfected water entering supply. f. There is duty and standby chlorine dosing at both plants. Automatic switchover is only in place at the ESB borehole, however in the event of a low chlorine residual at Lisrevagh the UV system would still be in operation. g. The chlorination contact times were not available at the plants during the audit. h. UV treatment was installed at the Lisrevagh boreholes in March 2008. There is one medium pressure UV unit treating the water from each borehole. i. The validation certificates for the UV units were not available at the plant during the audit. j. Spare lamps are kept on site for the UV units and a Longford County Council fitter is called in to replace them when necessary. k. The sodium hypochlorite is supplied by Brenntag, which is not on the list of authorised suppliers of biocides (refer to http://www.pcs.agriculture.gov.ie/biocides/Biocidal%20Product%20Register%20-%2012%20May%202014.pdf) therefore Irish Water are not in compliance with the EU Biocidal Products Regulations (528/2012) and associated Irish regulations (the European Union (Biocidal Products) Regulations, 2013).

3. AUDITORS' COMMENTS

In general the Lanesborough plants appeared clean and well managed. Aspects of the treatment have been upgraded in recent years (e.g. substitution of sodium hypochlorite for chlorine gas in the chlorination systems and the installation of UV treatment at the Lisrevagh boreholes). The audit team considers that information on catchment work and potential risks should be more readily available to the plant operators, to enable mitigation measures to be taken where necessary.

4. RECOMMENDATIONS

Source Protection

1. Irish Water should ensure that the *Cryptosporidium* risk assessment is reviewed for each of the boreholes and appropriate measures implemented to reduce the risk.

2. Irish Water should ensure that farmers are advised of the location of the abstraction points and their responsibilities under the *European Union (Good Agricultural Practice for the Protection of Waters) Regulations 2014 (SI No.31 of 2014)* to ensure, unless an alternative setback distance has been set as per Article 17 that:
    i. Organic fertiliser or soiled water is not applied to land within 200 m of the abstraction point; and
    ii. Farmyard manure held in a field prior to landspreading is not placed within 250 m of the abstraction point.

3. Irish Water should ensure that risks to the abstraction sources are identified and suitable mitigation measures put in place for security of the supply. Activities in the catchments may relate to both industrial activity (ESB borehole) and agricultural/domestic activities (Lisrevagh boreholes).

4. Irish Water should ensure that wellheads are suitably capped and sealed and that kiosks, where provided, are sealed against animal ingress.

Disinfection

5. Irish Water should review the contact time for chlorine disinfection to ensure that the correct dose and time (0.5 mg/l for at least 30 minutes) is being achieved as recommended by the World Health Organisation and that the first connections are receiving appropriately disinfected drinking water. Irish Water should submit a calculation of the contact time for the ESB borehole supply to the Agency.

6. Irish Water should review the use of disinfectants in the Lanesborough PWS and all other public water supplies to ensure that all disinfectants are authorised in accordance with the EU Biocides Products Regulation (528/2012) and associated Irish regulations (*European Union (Biocidal Products) Regulations, 2013*.

7. Irish Water should review the chlorine/UV alarm response procedure to ensure that it is adequate to prevent the entry of un-disinfected water into the network in the event of an incident of dosing breakdown or high chlorine demand.

8. Irish Water should ensure that the UV disinfection system is validated in accordance with an appropriate internationally accepted validation system.

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 Mr Darragh Page, 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 the 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: Aoife Loughnane **Date:** 27th August 2014

Aoife Loughnane

Inspector

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