

Site Visit Report

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 water to the visited public supply.

The audit process is a sample on a given date of the facility's operation. Where a finding against a particular issue has been reported this should not be construed to mean that this issue is fully addressed.

Water Supply Zone	
Name of Installation	Lanesboro
Organisation	Irish Water
Scheme Code	2000PUB1009
County	Longford
Site Visit Reference No.	SV20688

Report Detail	
Issue Date	04/11/2020
Prepared By	Michelle Roche

Site Visit Detail			
Date Of Inspection	15/10/2020	Announced	No
Time In	14:00	Time Out	15:30
EPA Inspector(s)	Michelle Roche		
Additional Visitors			

Company Personnel

Irish Water:
Andrew Boylan
Emily Mulqueen
John Hand

Longford County Council:
Karina O'Grady
Kierán Gaffney
Tom Murtagh

HSE:
John Soden
Enda Coffey
Tom Murtagh

> Summary of Key Findings

1. UV disinfection at the ESB borehole water treatment plant failed on the morning of 1st October 2020 and a Boil Water Notice was placed on the Lanesboro public water supply from the 2nd October to the 16th October 2020 while the UV unit was repaired and water quality verification sampling took place.
2. Longford County Council responded rapidly on discovering the UV failure on 1st October, escalating the failure to Irish Water who in turn notified the EPA and HSE in a timely manner.
3. Longford County Council water services staff did not escalate the issue of the UV controls being stuck in manual mode on 28th August 2020. As a result of UV controls being in manual mode, the ESB borehole water treatment plant did not automatically shut down when the UV failed on 1st October and inadequately treated water entered the distribution network.

> Introduction

The Lanesboro public water supply is sourced from three groundwater sources, the 'ESB borehole' and two boreholes at Lisrevagh (borehole 2 and borehole 3). The ESB borehole is pumped continuously and the two Lisrevagh boreholes supplement the ESB borehole at alternate times throughout the day. The supply produces approximately 2,500m³/day and 1000m³/day of that is supplied to the neighbouring Longford Central supply. All three boreholes have UV disinfection and chlorination in place.

The scope of the audit was to investigate Irish Water's response to the recent UV failure on the ESB borehole and subsequent Boil Water Notice that was placed on the Lanesboro supply from 2nd October to 16th October 2020. No customers on the Longford Central supply were placed on a Boil Water Notice as the supply was fully served from the Longford Central public water supply for the duration of the UV failure.

> Supply Zones Areas Inspected

The EPA conducted a full site visit audit of the Lanesboro public water supply in February 2020, therefore this audit, having regard to Covid-19 restrictions, was conducted solely by video conference on 15th October 2020.

The audit gathered the details of the UV failure which resulted in the Boil Water Notice and assessed Irish Water's response to the failure. Online continuous monitoring data was assessed to verify that the UV treatment was operating correctly since the failure was rectified on 9th October and water quality verification data was examined.



1. Incident Management

1.1

	Answer
Was the incident suitably alerted to the plant operators, escalated and managed in order to maintain water quality and protect public health?	Yes
<p>Comment</p> <p>The UV disinfection at the ESB borehole water treatment plant failed on 1st October 2020 at 4:50am. The UV unit is fully alarmed and programmed to shut down the water treatment plant if the unit is not operating correctly, however on this occasion the unit did not send out an alarm to Longford County Council (Longford CC) water services staff and the automatic shut-down did not work. When Longford CC water services staff arrived to site at 9:00am on the morning of 1st October they immediately shut down the water treatment plant and escalated the failure to senior Longford CC staff and Irish Water. Irish Water then notified the EPA and the HSE.</p> <p>Before Longford CC water services staff shut down the ESB borehole water treatment plant, water was being disinfected with sodium hypochlorite, however the failure of the UV meant there was no <i>Cryptosporidium</i> barrier in place. Irish Water estimate that 271m³ of inadequately treated water entered the Lanesboro distribution network before the plant was shut down. If the automatic shut-down fail safe had operated correctly, no inadequately treated water would have entered the distribution network, and public health would have been fully protected.</p> <p>The two other Lisrevagh borehole sources were unable to continue to meet the demand of the supply and on 3rd October the ESB borehole was turned back on without the UV treatment. Although disinfection by chlorination remained in place on the ESB borehole, a Boil Water Notice was placed on the Lanesboro public water supply on the evening of 2nd October 2020 to protect consumers while the UV <i>Cryptosporidium</i> barrier was being repaired.</p> <p><u>Reason the UV alarm and shut-down failed</u></p> <p>From the 18th to 21st August 2020, a series of bursts occurred on the rising main from the ESB borehole water treatment plant to the Carrowroe reservoir. While repairing these bursts the treatment plant was switched off and on re-starting the plant the UV controls defaulted to manual mode. At the time Longford CC water services staff could not change the controls back to automatic mode and left the site on Friday 21st August with the UV controls in manual, and without escalating the problem any further. As a result of the UV controls being left in manual mode neither the alarm set-points nor the automatic shut-down were enabled. On 2nd October, after the UV failure, Longford CC water services staff realised the controls were still in manual mode.</p> <p><u>Reason the UV failed</u></p> <p>The reason for the UV failure on 1st October was that the UV ballast which ignites the UV unit failed. The UV contractor replaced the ballast on 7th October and reset the UV controls to automatic mode. On starting up the water treatment plant again after the repair, another burst occurred on the rising main and the treatment plant was not restarted again until 3:30pm on 9th October.</p> <p><u>Irish Water response to UV failure</u></p> <p>Irish Water stated they have taken the following actions in response to the UV failure to mitigate against the future risk of a similar failure either at Lanesboro or elsewhere in Longford County:</p> <ul style="list-style-type: none"> • All Longford CC water services staff will receive re-training in incident response and escalation and the importance of ensuring water treatment equipment and controls are operating correctly. • The UV dose shut-down set point has been increased from 20mj/cm² to 40mj/cm² in order to further reduce the risk of inadequate treatment for <i>Cryptosporidium</i>. • A spare ballast will now be stored at the ESB borehole water treatment plant. • Irish Water will re-assess the need for replacement of the rising main from the ESB borehole to the Carrowroe reservoir. 	

Recommendations

Subject	Audit Recommendations	Due Date	04/12/2020
Action Text	<p>Recommendation(s)</p> <ol style="list-style-type: none"><li>1. Irish Water should ensure that all Longford County Council water service staff are provided with refresher training in incident response to ensure incidents which could impact on treated water quality, including malfunction of equipment and controls, are escalated promptly.<li>2. Irish water should ensure there is a documented procedure in place that requires contractors or maintenance personnel working at either water treatment plant (ESB borehole or Lisrevagh boreholes) to check and confirm that critical plant alarms and fail safes are verified to be in proper working order after any works have been carried out, and prior to leaving the site. <p>Follow-Up Actions required by Irish Water</p> <p>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.</p> <p>This report has been reviewed and approved by Aoife Loughnane, Drinking Water Team Leader.</p> <p>Irish Water should respond to the Agency on or before 4th December 2020 detailing how it has dealt with the issue of concern identified during this audit.</p> <p>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.</p> <p>Please quote the Action Reference Number, DW20200227 in any future correspondence in relation to this Report.</p>		