



Drinking Water Audit Report

County:	Clare County	Date of Audit:	20/05/2014
Plant(s) visited:	O'Brien's Bridge (03000PUB 1020)	Date of issue of Audit Report:	29/05/2014
		File Reference:	DW2013/83
		Auditors:	Mr Niall Dunne
Audit Criteria:	<ul style="list-style-type: none"> • The <i>European Union (Drinking Water) Regulations 2014 (S.I. 122 of 2014)</i>. • <i>The EPA Handbook on the Implementation of the Regulations for Water Services Authorities for Public Water Supplies (ISBN: 978-1-84095-349-7)</i> • The recommendations specified in the EPA Report on <i>The Provision and Quality of Drinking Water in Ireland</i>. • The recommendations in any previous audit reports. 		

MAIN FINDINGS

- i. A Direction was issued on the 27th September 2013 requiring Clare County Council to ensure that the following works were complete by the 31st December 2013;
 - a. All consumers on this supply to receive adequately disinfected water; and
 - b. The disinfection system to be fully upgraded so as to meet the criteria set out in the *EPA Drinking Water Advice Note No 3. E.Coli in Drinking Water*.

It was observed during this audit that the works required under the Direction had not yet started and that the Direction was not complied with. IW must ensure that the works required by the Direction are carried out as a priority and without delay.

- ii. The chlorine dosing at the Ardtaggle reservoir consists of duty standby dosing. There is no chlorine monitor; no alarm and no automatic switch over between the dosing pumps. IW must ensure that all chlorine dosing systems meet the criteria set out *EPA Drinking Water Advice Note No 3. E.Coli in Drinking Water*.

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 relation to complying with an EPA Direction, issued on the 27th September 2013.

The O'Briensbridge supply was last audited on the 12th September 2013. The findings of the audit were that the disinfection system was not in compliance with EPA guidance and there was inadequate disinfection contact time in the drinking water to consumers. On foot of this audit a direction was issued to ensure that adequate chlorine contact time in the drinking water was achieved and that the disinfection system was upgraded by the 31st December 2014.

The O'Briensbridge plant serves Ardtaggle, Mountpelier, O'Brien's Bridge and Bridgetown. Since the last audit, the Bridgetown supply has been amalgamated into the O'Briensbridge supply. The O'Briensbridge supply now serves a population of approximately 1,200 and supplies approximately 500 m³/day. The supply consists of a bored well source with chlorine disinfection. Photographs taken by Niall Dunne during the audit are attached to this report and are referred to in the text where relevant.

The opening meeting commenced at 10:15 am at the O'Briensbridge 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 : (* indicates that person was also present for the closing meeting)

Anna Brosnan – IW SLA Lead*; Kevin Murphy – IW Water Engineer*; Tom Mellett – CCC Executive Engineer*; Patrica Ryan – CCC Area Technician*; Eamon Burke – CCC Caretaker*.

Representing the Environmental Protection Agency:

Niall Dunne - 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.	<p>Source Protection</p> <p>a. A finding of the previous audit was that the well chamber should be upgraded to ensure that the borehole is made secure from surface water runoff and that the well head and chamber is constructed as per the Institute of Geologists of Ireland 'Water Well Guidelines'. This work was observed not to be initiated (see photograph 1). It was indicated by CCC (Clare County Council) staff that this would be completed by November 2014.</p> <p>b. A bored well was observed adjacent to the Ardtaggle reservoir. According to CCC staff this well is used to maintain water levels within the reservoir. CCC staff were unaware of water quality of the well and whether farm surveys had been carried out within the vicinity of the well. The well was located below ground level and the well head cover was observed not to be effective against surface water runoff (see photograph 2 &3). CCC staff were also unaware of the depth of the well.</p>
2.	<p>Chlorination and Disinfection</p> <p>a. During the audit carried out on the 12/09/2013, it was found that there was inadequate chlorine contact time in the drinking water when water is fed directly from the borehole to consumers, this according to CCC, only occurs while the Ardtaggle reservoir was filling.</p> <p>b. CCC staff estimated that approximately 300 consumers receive inadequately disinfected water for approximately 20 hours per day. When water is fed from the Ardtaggle reservoir, which provides contact time, consumers then receive water which is adequately disinfected.</p> <p>c. It was also noted during the audit of 12/09/2013 that the chlorine monitor was located at the end of the network and not at the O'Briensbridge chlorination building; that the chlorine monitor was not connected to the chlorine dosing pumps and that the monitor was not alarmed and not linked to a recording device. The EPA issued a direction on the 27/09/2013 requiring the Water Service</p>

	<p>Authority to resolve these issues by the 31/12/ 2013. It was noted during this audit of the 20/05/2014 that works to comply with the Direction were not started. IW stated that they had given approval for work to commence. CCC indicated that the works to comply with the Direction would not be complete until November 2014.</p> <p>d. CCC staff stated that there was no automatic switch over between the duty and standby pumps at the main chlorine dosing point.</p> <p>e. The reading on the chlorine monitor at the end of the network was 0.09 mg/l.</p> <p>f. It was observed that the use by date on the chlorine drums at the dosing plant had expired.</p> <p>g. The water from the bored well adjacent to the Ardtaggle reservoir is chlorinated prior to entering the reservoir. Chlorination consists of duty standby chlorination there is no alarm; no monitor and no auto switchover in place at this dosing point (see photograph 4).</p>
<p>3.</p>	<p>Treated Water Storage</p> <p>a. Treated water is stored in the Ardtaggle reservoir. CCC staff stated that no integrity test had been carried out on the reservoir but that it has been cleaned out. CCC staff were not sure of date it was cleaned out.</p> <p>b. The vents on the reservoir were observed not to be secured against ingress of insects etc. and the covers on the reservoir were not secured against surface water ingress (see photograph 5 & 6).</p> <p>c. The reservoir was fully covered with grass and vegetation (see photograph 6).</p>
<p>4.</p>	<p>Management and Control</p> <p>a. Written procedures were observed to be on site.</p> <p>b. Calibration stickers were on equipment but the writing on some stickers was illegible.</p> <p>c. There were no raw or treated water monitoring results on site.</p>

3. AUDITORS COMMENTS

A Direction was issued on the 27th September 2013 to ensure that consumers on this supply received properly disinfected water and that the disinfection system be upgraded to meet the EPA standards as set out in *EPA Advice Note Number 3 E.Coli in Drinking Water*, these works were to be completed by the 31st December 2013. This audit was carried out to confirm compliance with the Direction. It was observed during the audit that works required by the Direction were not yet started and that the proposed date for completion was now November 2014.

Eight months after the Direction was issued and five months since the deadline for completion the works have not started. The Direction has not been complied with. Irish Water must ensure that the works required by the Direction are carried out as a priority and without delay.

It was also observed that there was only duty standby dosing at the Ardtaggle source, there was no chlorine monitor and no dial out with alarms in place at this site. Irish Water must ensure that chlorine dosing points met the criteria set out in *EPA Advice Note Number 3 E.Coli in Drinking Water*.

Works on the upgrade of the borehole chamber have also not started, which was a recommendation of the audit carried out on the 12th September 2013.

4. RECOMMENDATIONS

1. The Water Services Authority must ensure that the works required by the Direction are completed as a priority and without delay.
2. The Water Services Authority should install a continuous chlorine residual monitor on the Ardtaggle dosing point. This monitor should be alarmed and linked to a recording device to ensure that either a sudden increase in chlorine demand or a failure of the chlorine dosing system is immediately detected. The Water Services Authority should ensure that there is automatic switch between all dosing pumps in the event of the failure of one of the pumps.
3. The Water Services Authority should ensure that dosing of chlorine at the Ardtaggle site is flow proportional or is linked to the residual chlorine monitor. Where the dosing pump is fixed the Water Services Authority should replace the pump(s) with flow proportional pumps or pumps capable of dosing based on the residual chlorine monitor.
4. The Water Services Authority should put procedures in place to ensure that all chemicals used in the treatment of water are within the expiry date.
5. The Water Services Authority should ensure that the source chambers and the well heads at both the main source and at the Ardtaggle source are made secure from surface water runoff and that they are constructed as per the *EPA Drinking Water Advice Note No. 14: Borehole Construction and Wellhead Protection*.
6. The Water Services Authority should ensure that a *Cryptosporidium* risk assessment is carried out for the Ardtaggle source.
7. The Water Services Authority should ensure that requirements of the *European Union (Good Agricultural Practice for the Protection of Waters) Regulations 2014 (SI No.31 of 2014)* are being complied with in the vicinity of the Ardtaggle source.
8. The Water Services Authority should carry out regular monitoring on the Ardtaggle raw water sources and should include monitoring for *E. coli* bacteria, as an indicator of trends in assessing water quality and to determine the degree of treatment and controls required in the supply.
9. The Water Services Authority should carry out an integrity assessment of the clear water tank/service reservoir to ensure that there is no ingress into the reservoir. All vegetation from the sides and cover of the reservoir should be removed to ensure that the reservoir can be visually inspected on all sides and also prevent damage to the integrity of the reservoir.
10. The Water Services Authority should ensure that all vents on the reservoirs are secured against ingress of animals or deliberate introduction of any contaminant or acts of vandalism and that all covers on the reservoir and the borehole are of the type that are fully secure against surface water ingress and are lockable.

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 Brendan Wall, Manager, Environmental Enforcement (Water).

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.

A direction has issued by the Agency under a separate cover legally requiring specific recommendations to be implemented by Irish Water.

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.

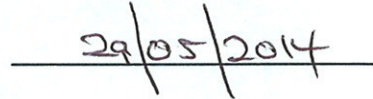
Please quote the File Reference Number DW2013/83 in any future correspondence in relation to this Report.

**Report prepared
by:**

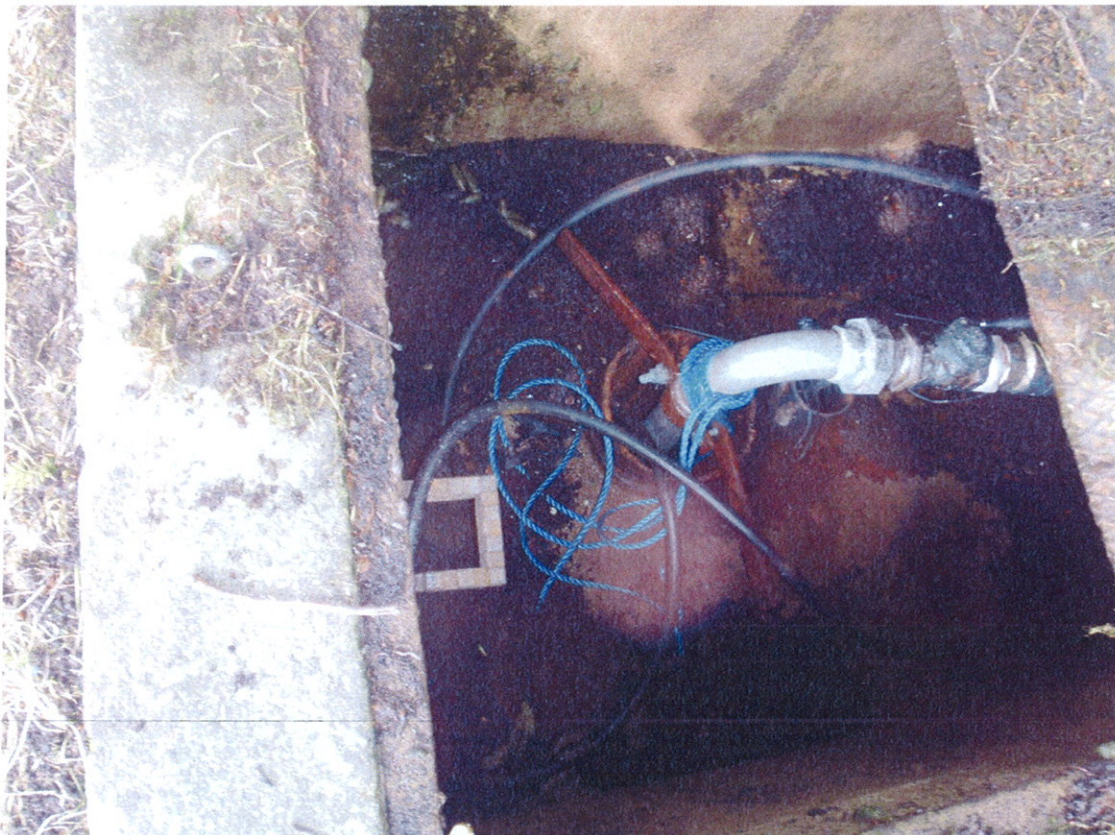


Niall Dunne
Inspector

Date:



Photograph 1: Well head at O Briensbridge located below ground level and not constructed as per appropriate guidelines.



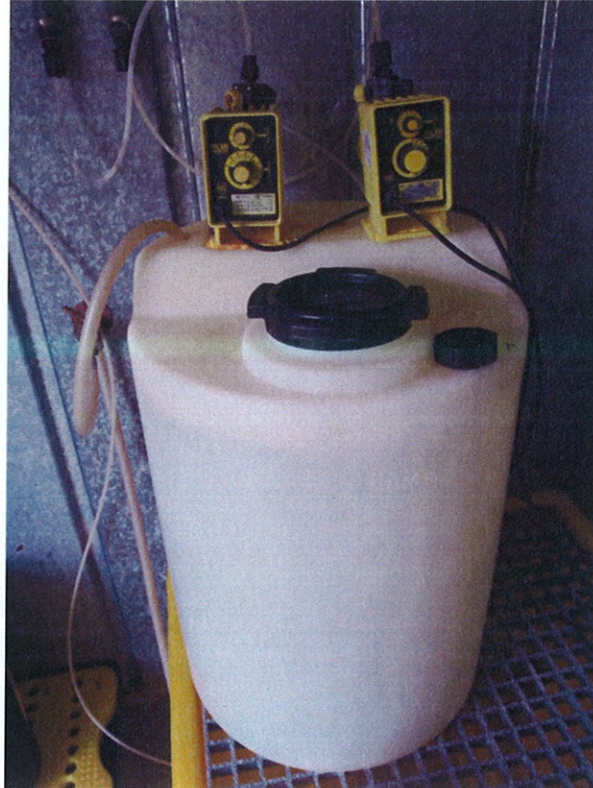
Photograph 2: Well head at Ardtaggle not constructed as per appropriate guidelines.



Photograph 3: The cover on the Ardtaggle reservoir was also observed not be effective against surface water ingress.



Photograph 4: Chlorine dosing at the Ardtaggie reservoir consists of duty standby dosing only. There is no chlorine monitor no auto switch over or no dial out alarms.



Photograph 5: Vents on reservoir were observed not to be secure against insects etc.



Photograph 6: The covers on the reservoir were observed not to be of the type that was sufficient to prevent surface water ingress. The reservoir was also observed to be covered in vegetation.

