Drinking Water Audit Report

County:	Limerick	**Date of Audit:**	08/03/2016
Plant(s) visited:	Kilteely PWS 0300PUB1068	**Date of issue of Audit Report:**	31/03/2016
		File Reference:	DW2016/46
		Auditors:	Mr Niall Dunne
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 *Drinking Water Report.* • EPA Drinking Water Advice Notes No.s 1 to 15. • The recommendations in any previous audit reports.		

MAIN FINDINGS

i. **At the time of the audit, Limerick County Council stated that there were issues with the SCADA system countywide; as a result the SCADA system at this plant was not operational. Irish Water must ensure that the issue with the SCADA system is rectified as soon as possible.**

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

Kilteely public water supply serves a population of approximately 300 people. The source for the supply is a bored well. Treatment consists of chlorination only.

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 10.30 am at Kilteely 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: Deirdre O' Loughlin*- Compliance Specialist, Irish Water. Kevin Murphy*- Water Engineer, Irish Water. Duane O' Brien*- Operations, Irish Water. Patrick Duggan*- Compliance Analyst, Irish Water. Barry Murphy *- Area Engineer, Limerick County Council Ailish O Donnell*- Senior Executive Scientist, Limerick County Council. Willy Hurley*- Foreman, Limerick County Council. Tom Barrett* - Caretaker, Limerick County Council. 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.	**Source Protection** a. Kilteely supply is fed from a bored well. LCC (Limerick County Council) stated that the bore hole is approximately 50 m deep. It was observed that there was no grouting between the inner and outer casings of the borehole, (see photograph 1). b. The well head was observed to be above ground level and the well head was sealed (see photograph 2). c. Raw water sample taken on the 27/04/2016, showed 0 No. *E.coli* /100mls and 0 No. coliform bacteria / 100 mls. The UVT of the raw water was recorded as 97.6% and the turbidity 0.2 NTU. d. The crypto risk assessment score was calculated as 73.1, moderate risk.
2.	**Disinfection** a. LCC stated that the chlorine contact time to the first consumer was calculated as 21.9 mg.min/l. b. Duty and standby chlorine dosing pumps were observed. LCC stated that there is auto switch over in place between the pumps and they are also set to switch automatically over every 8 hours. LCC stated that there were dial out chlorine residual alarms in place. The high and low level alarms were set at 1 mg/l and 0.1 mg/l respectively. c. The chlorine residual reading on the monitor at the time of the audit was 0.43 mg/l, (see photograph 3). A reading taken during the audit with the hand held chlorine residual monitor returned a result of 0.62 mg/l, LCC could not account for the discrepancy. d. It was observed that the calibration date on the hand held monitor was 22/03/2014. LCC stated that the chlorine monitors are calibrated every year, no calibration sticker was observed on the chlorine residual monitor. e. LCC stated that if there is a discrepancy between the chlorine monitor and the hand held monitor, the chlorine monitor is calibrated to match the handheld monitor.
3.	**Treated Water Storage and Distribution Network** a. LCC stated that the reservoir within the network has a storage capacity of approximately 6 hours and to maintain storage capacity is an issue due to ongoing pipe breakages within the network especially during periods of high demand.

4.	**Monitoring and Sampling Programme for treated water** a. LCC stated that in 2015 they took one audit and six check monitoring samples. b. LCC stated that the caretaker takes a chlorine sample from the same location within the network on a daily basis. LCC stated that no chlorine residual samples are taken at the end of the network.
5.	**Management and Control** a. According to LCC, since Christmas 2015 the SCADA system countywide has not been fully operational due to issues with the main server, dial out alarms are still operational. LCC expect that the countywide SCADA system to be operational within one month from the date of the audit. b. The plant was well maintained and written records were of a good standard.

3. AUDITORS COMMENTS

At the time of the audit the countywide SCADA system was not fully operational and hence the SCADA system at this plant was not operational. Irish Water should ensure that the issues with the countywide SCADA system are rectified as soon as possible.

It was noted that there was a difference in the chlorine residual reading taken with the handheld monitor and that observed on the chlorine residual monitor. It was also observed that the calibration sticker on the hand held monitor was out of date. Irish Water should ensure that all chlorine residual monitoring equipment is regularly calibrated and that calibration stickers are placed on all chlorine monitoring equipment to reflect this.

4. RECOMMENDATIONS

General

1. Irish Water should ensure that the issue with the countywide SCADA system is rectified, without delay.

2. Irish Water should install grout between the inner and outer casings of the borehole in accordance with *EPA's Guidance Note Number 14 Borehole and Well Head Construction.*

3. Irish Water must ensure that all chlorine monitoring equipment is regularly calibrated and that calibration stickers are placed on the equipment to reflect this.

4. Irish Water should ensure that chlorine readings are taken at the end of the network on a regular basis to ensure that chlorine residuals of 0.1 mg/l are being achieved at the extremities of the network.

5. Irish Water should put plans in place to remediate against the regular pipe breakages within the network.

6. Irish Water should put plans in place to ensure that adequate storage capacity is maintained within the network all times.

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 Ms Aoife Loughnane, Drinking Water Team Leader.

Irish Water 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 DW2016/46 in any future correspondence in relation to this report.

Report prepared by: _____ Date: 31/03/2016

Inspector

Photograph 1: No grouting between the inner and outer casings of the bored well.

Photograph 2: Top well head above ground level.

Photograph 3: Reading on chlorine monitor 0.43mg/l, reading on hand held chlorine monitor was 0.62 mg/l.