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	Kilmainhamwood
Organisation	Irish Water
Scheme Code	2300PUB1012
County	Meath
Site Visit Reference No.	SV26138

Report Detail

Issue Date	12/12/2022
Prepared By	Lorcan Farrell

Site Visit Detail

Date Of Inspection	14/11/2022	**Announced**	Yes
Time In	10:30	**Time Out**	12:26
EPA Inspector(s) **Additional Visitors**	Lorcan Farrell Michelle Roche		
Company Personnel	Irish Water: Ivan Corcoran, Stephen Brennan, Joseph Moran. Meath County Council: Helen McDonnell, Norbert McMahon, Linda Doran, Conor Grey.		

Summary of Key Findings

(1) The audit found that Kilmainhamwood water treatment plant (WTP) was operating satisfactorily on the day of the audit.

(2) The plant is currently being upgraded in line with the Irish Water Disinfection Programme. These upgrades will remedy a number of deficiencies identified on the day of the audit and are due to be completed by the end of 2022.

(3) A new borehole has been drilled at the treatment plant that is intended to become the main production well. The new borehole will be brought into production in 2023 and is indented to fully replace the Boynagh borehole while keeping the Eden borehole as a backup source.

Introduction

Kilmainhamwood Public Water Supply serves a population of 550 people (EDEN figures) and produces between 170-240 m3/day depending on demand. The plant sources its water from two boreholes (Eden and Boynagh) with treatment consisting of pre-chlorination and pressure filtration of the combined water from both sources.

The audit was undertaken to assess Irish Water's performance in producing clean and wholesome water.

Supply Zones Areas Inspected

The audit comprised of a site visit to Kilmainhamwood WTP and involved an inspection of the treatment plant, reservoir and both sources.

1. Source Protection

		Answer
1.1	Is the abstraction source(s) adequately protected against contamination?	No

Comment

(1) The Eden borehole was surveyed by camera in 2021 and the conclusion of the report was that the well does not conform with current standards (*EPA Advice Note 14: Borehole Construction and Wellhead Protection*). The wellhead is located below ground level in a concrete chamber with the well casing covered by a piece of thin sheet metal. There was standing water present in the chamber which appeared to be at the same level as the top of the well casing. The wellhead chamber is inspected by the caretaker approximately every three months.

(2) The Boynagh wellhead is located below ground level in a concrete chamber and is also covered by a piece of thin sheet metal. It was stated at the audit that the Boynagh borehole is a low yielding well particularly in times of low rainfall/drought.

(3) A new borehole has been drilled onsite which is not in production. It was stated at the audit that the new well would become the main production well for the supply. It is intended that the new well will replace the Boynagh borehole which is to be taken out of production while leaving the Eden borehole as a backup source when needed. The new well is expected to be brought into production in 2023.

(4) On the day of the audit Meath County Council stated that landowners were last contacted concerning setback distances in 2011.

2. Filtration

		Answer
2.1	Are the filters designed and managed in accordance with EPA guidance?	No

Comment

(1) There are two pressure filters at the treatment plant used for iron removal. Meath County Council stated that iron levels in the raw water were low but changeable. A filter assessment was completed in 2020 with results described as excellent. Backwashes take place every 24 hours and last for approximately 15 minutes. There is no run to waste or slow start after backwashes.

3. Reservoirs and Distribution Networks

		Answer
3.1	Is treated water in tanks and reservoirs suitably protected against contamination?	Yes

Comment

(1) The reservoir was inspected and cleaned in 2018 and it was stated at the audit that the reservoir would be included in the Irish Water Reservoir Inspection Programme.

(2) On inspection of the top of the reservoir, it was noted that both inspection hatches were closed but unlocked.

4. Management and Control

		Answer
4.1	Has the protozoal compliance log treatment requirement been identified for the water treatment plant?	No

Comment

(1) There was no protozoal log treatment requirement for the supply available on the day of the audit and no monitoring for *Cryptosporidium* is taking place. There is occasional raw water monitoring of both sources and it was proposed by Meath County Council that this could be regularised to monthly monitoring in 2023.

		Answer
4.2	Is there a documented alarm response procedure?	Yes

Comment

(1) There is a documented alarm response procedure at the plant with alarms operating via a cascade system to the caretaker and relevant operational staff. No up-to-date contact list was available on the day of the audit. Meath County Council stated that the contact list would be updated and posted in a visible area of the treatment plant and that this would be replicated at all other relevant Meath County Council sites.

		Answer
4.3	Are suitable plant shutdowns/inhibits in place to prevent the entry of inadequately treated water entering the distribution network?	No

Comment

(1) There is no final water turbidity meter in place at the plant. Manual turbidity samples are taken daily and recorded in the plant logbook. These results were reviewed and were found to be compliant with the 1 NTU regulatory limit. It was stated at the audit that an online turbidity monitor was present on site and was due to be installed as part of the Irish Water Disinfection Programme upgrades due for completion in Q4 2022.

(2) There are no shutdown levels based on inadequate chlorine contact time or on low residual chlorine levels at the treatment plant. It was stated at the audit that all necessary alarms and inhibits will be included as part of the Irish Water Disinfection Programme upgrades.

Recommendations

Subject	Kilmainhamwood PWS Audit Recommendations [14/11/2022]	Due Date	09/01/2023

Action Text

Recommendations

Irish Water is responsible for ensuring a safe and secure supply of drinking water. To address these issues Irish Water should implement the following recommendations without delay.

1. Irish Water should complete ongoing works under the Irish Water Disinfection Programme to upgrade the disinfection system at the plant. This should include provision of appropriate alarms/shutdowns based on verified chlorine residuals after contact time.

2. Irish Water should install a continuous turbidity monitor on the final treated water and ensure that appropriate alarms/shutdowns are in place in accordance with the regulatory 1 NTU limit on final water turbidity, as detailed in the *EPA Water Treatment Manual: Filtration*.

3. Irish Water should: (i) advance plans to develop and introduce the newly drilled well as the main production well for the treatment plant, (ii) ensure that surface water is prevented from entering any well for the supply and (iii) install appropriate caps on the tops of the pump chamber casings for both wells. Irish Water should have regard to *EPA Advice Note No. 14: Borehole Construction and Wellhead Protection* when carrying out these works.

4. Irish Water should: (i) confirm the log treatment requirement for the plant; (ii) confirm how the log deficit will be addressed and (iii) commence *Cryptosporidium* monitoring in accordance with Irish Water's *Rationale for Determining the Frequency of Cryptosporidium Monitoring in Public Water Supplies.*

5. Irish Water should liaise with Meath County Council to ensure that local landowners have been written to in relation to their obligations under the *European Union (Good Agricultural Practice for Protection of Waters) Regulations 2022*, as amended.

6. Irish Water should investigate the feasibility of installing a run to waste or slow start system for the filters in in accordance with the *EPA Water Treatment Manual: Filtration.*

7. Irish Water should ensure that reservoir inspection hatches are secured and locked.

8. Irish Water should ensure that an updated site-specific incident response contact list is present at the treatment plant.

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 Ruth Barrington, Drinking Water Team Leader.

Irish Water should submit a report to the Agency on or before 09/01/2023 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 time frame 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.