Site Visit Report

Under the *European Union (Drinking Water) Regulations 2014* as amended, the Environmental Protection Agency (EPA) is the supervisory authority in relation to Uisce Éireann and its role in the provision of public drinking water supplies. This audit was carried out to assess the performance of Uisce Éireann in providing clean and wholesome water to the public water supply named below.

The audit process is a sample of the performance of a water treatment plant and public water supply on a given date.

Water Supply Zone

Name of Installation	Athboy
Organisation	Uisce Éireann
Scheme Code	2300PUB1001
County	Meath
Site Visit Reference No.	SV27524

Report Detail

Issue Date	15/03/2023
Prepared By	Lorcan Farrell

Site Visit Detail

Date Of Inspection	21/02/2023	**Announced**	No
Time In	11:00	**Time Out**	12:05
EPA Inspector(s) **Additional Visitors**	Lorcan Farrell		
Company Personnel	Uisce Éireann: Daniel Behan, Michael Cunniffe and Edward Haythornthwaite. Meath County Council (working in partnership with Uisce Éireann): James Beirne, John Carroll, Helen McDonnell and Christina Sweeney.		

Summary of Key Findings

(1) The plant is scheduled to be upgraded under 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 2023.

(2) Investigations by Meath County Council in follow up to the audit confirmed that three properties were receiving untreated water from the raw water rising main connecting one of the source boreholes with the treatment plant. Meath County Council and Uisce Éireann consulted with the HSE and property specific Boil Water Notices were issued for all three properties.

Introduction

Athboy Public Water Supply serves a population of 4,950 people (EDEN figures) and the treatment plant produces between 1,200 - 1,500 m3/day depending on demand. The plant sources its water from two boreholes (Coille Dois and Trim Road boreholes) located off-site with treatment of the combined water from both sources consisting of chlorination.

The audit was undertaken to assess Uisce Éireann’s performance in producing clean and wholesome water with a focus on the alarms and inhibits at the treatment plant and the procedures in place to ensure appropriate oversight of treatment processes.

Supply Zones Areas Inspected

The audit included a site tour of Athboy Water Treatment Plant.

1. Alarms, Inhibits & Oversight Audits 2023

		Answer
1.1	Is continuous monitoring located appropriately to verify treatment performance?	No

Comment

(1) There is no final water turbidity monitor at the treatment plant. The treatment plant is due to be upgraded under the Uisce Éireann Disinfection Programme with works scheduled to start in July 2023 with a provisional completion timeframe of Q4 2023. These upgrades will address the lack of a final water turbidity meter and associated necessary alarms/shutdowns to prevent inadequately treated water entering supply.

(2) There are continuous turbidity monitors in place sampling the raw water from each borehole and the combined raw water before it reaches the treatment plant. A combined raw water turbidity trend was submitted before the audit indicating turbidity for the previous month was stable and averaged less than 0.1 NTU. On the day of the audit the combined raw water turbidity monitor was reading 0.014 NTU.

		Answer
1.2	Are suitable alarm settings in place to alert operators to deteriorating water quality or the failure of a critical treatment process?	No

Comment

(1) There are continuous raw water turbidity and UVT monitors in place at both boreholes and on the combined raw water supply before the treatment plant. There are no warning alarms in place on these monitors to alert operators in the event of deteriorating water quality. Meath County Council stated that provision of alarms on raw water monitors was not possible with current infrastructure.

		Answer
1.3	Has UÉ carried out an alarm and inhibit review at the water treatment plant?	Yes

Comment

(1) An alarm and inhibit review was carried out at the treatment plant in October 2022.

		Answer
1.4	Were all findings of the UÉ alarm and inhibit review implemented?	No

Comment

(1) The findings of the Alarm and Inhibit review are to be addressed under the Disinfection Programme upgrade works due to take place at the treatment plant this year.

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

Comment

(1) There are no plant shutdowns in place based on high/low residual chlorine levels after chlorine dosing and there is no automatic plant shutdown in place based on verified residual chlorine levels after contact time has been achieved. It was stated that these plant shutdowns would be included under the Uisce Éireann Disinfection Programme upgrade works scheduled to take place at the plant this year.

		Answer
1.6	Are plant performance trends accessible by operational staff at the water treatment plant?	Yes

Comment

(1) Plant performance trends are accessible via HMI by operational staff at the treatment plant however they are not checked as part of the daily routine operator checks carried out at the plant.

		Answer
1.7	Are there appropriate procedures covering verification of alarms and inhibits status following maintenance or other work on site?	No

Comment

(1) There are informal procedures covering verification of alarms and inhibits status following works carried out at the treatment plant however, there is no formal procedure or system in place such as a tag in/tag out system or alarm/shutdown testing following completion of works on-site.

2. Site Specific Issues

		Answer
2.1	Are all properties connected to Athboy Public Water Supply receiving adequately treated water?	No

Comment

(1) It was stated by Meath County Council during the audit that there may be properties connected to the raw water rising main that connects the source boreholes to the treatment plant where treatment/disinfection occurs.

(2) An investigation by Meath County Council was completed in the days after the audit and it was confirmed that three separate properties are connected to the raw water rising main which connects the Trim Road borehole with the treatment plant. The water in the raw water rising main is untreated. Meath County Council and Uisce Éireann consulted with the HSE and property specific Boil Water Notices were issued for each of the three properties to mitigate the potential risk to public health of consuming untreated water.

		Answer
2.2	Is the residual chlorine level ≥ 0.1 mg/l at the extremities of the distribution network?	Yes

Comment

(1) Free chlorine residual testing takes place daily within the network. The majority of the sample points for taking chlorine residuals are located towards the extremities of the the distribution network except for the section of mains to the east/south east of Athboy village. There is no sample point at the extremity of this section of the network to verify adequate free residual chlorine levels.

Recommendations

Subject	Athboy - Audit Recommendations	**Due Date**	17/04/2023
Action Text	**Uisce Éireann is responsible for ensuring a clean and wholesome supply of drinking water and should implement the following recommendations without delay.** 1. Ensure that all properties connected to Uisce Éireann assets in the Athboy Public Water Supply are receiving adequately treated water. 2. Complete scheduled works under the Irish Water Disinfection Programme to upgrade the disinfection system along with alarms and inhibits at the treatment plant. This should include: (i) provision of a final water turbidity meter with appropriate alarms/shutdowns, (ii) provision of appropriate warning alarms/shutdowns based on verified chlorine residuals after contact time and (iii) provision of appropriate high/low shutdown setpoints based on residual chlorine levels post dosing. 3. Ensure that residual chlorine is monitored within the network, including extremities, several times per week to ensure a minimum residual chlorine of 0.1 mg/l is maintained. 4. Ensure that plant performance trends are checked daily as part of the routine operational checks completed at the treatment plant. 5. Ensure that an appropriate procedure is in place covering verification of alarms/inhibits status following maintenance or other work completed at the treatment plant. 6. Investigate the feasibility of installing warning alarms on raw water turbidity and UVT monitors to alert operators in the event of deteriorating raw water quality. **Actions required by Uisce Éireann** During the audit, Uisce Éireann representatives were advised of the audit findings and that action must be taken by Uisce Éireann to address the issues raised. Uisce Éireann should submit a report to the EPA on or before 17/04/2023 detailing the actions taken and planned, with timescales, to close out the above recommendations. The EPA advises that the findings and recommendations from this audit report should, where relevant, be addressed at other public water supplies.		