

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	Trim
Organisation	Irish Water
Scheme Code	2300PUB1009
County	Meath
Site Visit Reference No.	SV24334

Report Detail	
Issue Date	02/02/2022
Prepared By	Ruth Barrington

Site Visit Detail			
Date Of Inspection	26/01/2022	Announced	Yes
Time In	10:30	Time Out	13:05
EPA Inspector(s)	Ruth Barrington		
Additional Visitors			
Company Personnel	Irish Water: Andrew Boylan, Fran Glancy Meath County Council (working under Service Level Agreement to Irish Water): Helen McDonnell, John Carroll, Christina Sweeney, Kieran Lacey, Diarmuid Connell		

> Summary of Key Findings

1. Following the audit, the EPA placed the Trim Public Water Supply on the Remedial Action List (RAL) published on 31/01/2022. This was done to reflect the significant infrastructural deficit which the plant operates under, due to pressures on volume in the supply and the ageing water treatment plant which was originally constructed as an interim facility. Irish Water should provide an action programme and completion timeline to address these issues by 30/06/2022.
2. Irish Water and Meath County Council have since the previous EPA audit provided filtered water and final water inhibits for run to waste and shutdown of the plant in the event of high turbidity. These inhibits, together with operator vigilance, maintained the filtration barrier to *Cryptosporidium* during the sludge overflow incident in December 2021.

> Introduction

Trim Public Water Supply (PWS) supplies over 11,500 people from the Trim Water Treatment Plant (WTP). Water is abstracted from the River Boyne and treated through coagulation, flocculation, clarification and filtration processes, with two Trident filters and one Dissolved Air Flotation and Filtration (DAFF) operating in parallel. Disinfection is achieved by chlorination.

The audit was carried out in response to the Boil Water Notice in place on the Trim Public Water Supply from 16/12/2021 to 20/12/2021, THM exceedance in December 2021, *Cryptosporidium* detection in October 2021 and to assess Irish Water's progress in implementing the recommendations of the previous EPA audit on 23/01/2019.

> Supply Zones Areas Inspected

The audit was carried out on-site at Trim Water Treatment Plant. The scope of the site inspection included the area of the site impacted by a sludge overflow in December 2021, the filtration processes and *Cryptosporidium* sampling rig.



1. Incident Management

1.1

Was the incident suitably alerted to the plant operators, escalated and managed in order to maintain water quality and protect public health?

Answer

Yes

Comment

1. A mechanical failure at the Picket Fence Thickener on 06/12/2021 led to a build up of sludge on-site while repairs were pending. This was being stored in the old sludge lagoons, an overflow from which entered the backwash tank and clearwater tank through ducting channels in the yard, on 15/12/2021. The water treatment plant (WTP) shut down on the final treated water turbidity inhibit preventing an impact on treated water quality. The incident response continued overnight as operators investigated the reason for the shut down and the extent of the overflow. The WTP remained shut down during this process.
2. By the 16/12/2021 the reservoir levels were dropping due to demand on the supply, and the re-start of the WTP was planned. A precautionary Boil Water Notice was placed on the supply on 16/12/2021, as operators feared that inhibits could be triggered during the restart of production. The WTP configuration is such that water is required in the clearwater tank for plant processes.
3. A monitoring programme was carried out prior to the Boil Water Notice lift. Results were satisfactory, and the Notice was lifted on 20/12/2021.
4. At the time of the audit, replacement parts had been sourced for the Picket Fence Thickener and were due on site during the week beginning 31/01/2022. Sludge and washwater tankering off-site to Trim wastewater treatment plant continued in operation and sludge is no longer being transferred to the lagoons for storage.



2. Source Protection

2.1

		Answer
	Is the abstraction source(s) adequately protected against contamination?	No
Comment		
<p>1. The intake abstraction for the Trim WTP is located downstream of the emergency and stormwater overflows of the Trim wastewater network. In response to a previous EPA audit recommendation, Irish Water installed an ammonia monitor on the intake and the intent was to link this to alarms and inhibits to protect the intake in the event of a wastewater discharge to the River Boyne. However, at this audit Meath County Council staff described that the monitor has required constant maintenance and is not reliable enough to base plant inhibits on. It was thought that the monitor and/or its probes and sample lines were unsuitable for a raw water environment.</p> <p>2. The lack of controls on the raw water intake has been mitigated to some extent by alarming the wastewater overflows, which dial out to Trim WTP staff to alert them. A response can then be made and the incident escalated by Meath County Council. However this depends on staff being available and responding very quickly. From a previous EPA audit report, there is around 10 minutes travel time between the discharge location and the intake works. It is considered unreasonable that an adequate response within 10 minutes is possible, particularly out of hours.</p>		



3. Management and Control

3.1

Is the water treatment plant resilient enough to cope with significant variations in raw water quality or demand?

Answer

No

Comment

1. The status of the current Trim WTP processes and a planned capital upgrade, which is at scoping stage, was discussed during the audit. Meath County Council staff outlined the history of the WTP and stated that it had been built as a temporary solution pending the construction of another water treatment plant, which did not go ahead. The Trident filters were provided within the original interim scope, and the DAFF was installed in 2006 to increase capacity. The DAFF had a 10-year design lifespan.
2. During the audit it was observed that the DAFF tank has significant leaks. Meath County Council had installed drains around the tank to cope with this, as a health and safety measure. The DAFF tank suppliers have carried out a number of repair attempts on the leaks without success. A backwash of the DAFF showed a boil within the filter media, indicating that the process is not operating optimally.
3. A sludge overflow incident occurred in December 2021 following a mechanical failure in the picket fence thickener and a lack of appropriate storage on-site for sludge. While the installation of a final water turbidity shutdown prevented a direct impact on water quality due to the incident, in order to restore the treatment plant processes it was necessary to impose a Boil Water Notice to regain volume into the supply without risks of the plant inhibits triggering.
4. The water supply is also prone to supply interruptions, the most recent of which in January 2022 was due to signal drop on the raw water intake pumps causing water outage over a weekend. Water quality was not affected in that instance.
5. Following the audit, the EPA placed the Trim Public Water Supply on the Remedial Action List (RAL) published on 31/01/2022. An action programme will be required from Irish Water outlining the scope and timeline for upgrading Trim Water Treatment Plant to address the audit recommendations.

3.2

Has the protozoal compliance log treatment requirement been identified for the water treatment plant?

Answer

Yes

Comment

1. Prior to the audit, Irish Water supplied information to the EPA indicating that an objective *Cryptosporidium* log requirement score of 3 had been identified as part of the Drinking Water Safety Plan risk assessments. The previous generic assignment of log requirements quoted in the EPA's 2019 audit report was a log 5 requirement. The log requirement was discussed during the audit, but the details of this assessment were unknown by the staff present at the audit, and a log 3 requirement does not appear to be consistent with calculated risks to other supplies. As this log requirement will be used as a basis for the scope of the capital upgrade of the water treatment plant, it is a critical step in the risk assessment process particularly given the risk of overflows from the wastewater network.

3.3

Are suitable plant shutdowns/inhibits in place to prevent the entry of inadequately treated water entering the distribution network?

Answer

Yes

Comment

1. Suitable alarms and inhibits were provided by Irish Water on turbidity at individual filter outlets (run to waste) and on final water (treatment plant shutdown) to protect the filtration and disinfection barriers. These were implemented in follow up to the previous EPA audit in 2019.
2. It is noted that full plant shutdown can cause issues on plant re-start, as due to plant configuration water is required in the clear water tank to start up the processes successfully. This requirement, combined with the high demand on the supply, reduces the resilience of the supply.



4. Drinking Water Quality

4.1

Have failures of the parametric values or the detection of pathogenic micro-organisms or parasites in the water supply been adequately investigated?

Answer

No

Comment

1. The investigation of the THM exceedance in December 2021 has not yet been completed. This should be completed having regard to the EPA *Advice Note 4 (Version 2) Disinfection By-Products in Drinking Water*, to determine the cause and corrective actions for the exceedance.

2. It is noted that a lab reporting delay of over three weeks in relation to the *Cryptosporidium* detection in a sample taken in October 2021, and the quality control issue of a negative result apparently being reported initially, is under investigation by Irish Water.

Subject	Trim Audit 26/01/2022	Due Date	02/03/2022
Action Text	<p>Recommendations</p> <p>Irish Water is responsible for ensuring a safe and secure supply of drinking water. To address the issues described in this report, Irish Water should implement the following recommendations without delay.</p> <ol style="list-style-type: none"> 1. Irish Water should provide a Remedial Action List programme of works with timeframes by 30/06/2022 for the upgrade of the Trim Water Treatment Plant to address the issues of ageing infrastructure, treatment plant start-up provisions and the volume demand. The risks posed to the safety and security of the supply due to the upstream wastewater overflows, and consideration of the log credit requirement, should be included within the scope of the programme. 2. Irish Water and Meath County Council should investigate the continuing issues with the raw water ammonia monitor, and provide a new one which is appropriately designed for the raw water sample location. The feasibility of using the monitor to inform and control raw water intake should be established as originally proposed by Irish Water. 3. Irish Water should carry out the scheduled repairs to bring the Picket Fence Thickener back into service. 4. Irish Water should complete the investigation into the delayed lab reporting and quality control issues in relation to the Cryptosporidium detection in October 2021, and should ensure that lessons learned and any revised work practices are disseminated to all labs within the Lab Framework. 5. Irish Water should complete the investigation of the THM exceedance in a sample dated 14/12/2021 having regard to the EPA <i>Advice Note 4 (Version 2) Disinfection By-Products in Drinking Water</i>, to establish the cause and corrective actions to restore compliance with the THM parametric value. <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 Michelle Minihan, Drinking Water Senior Inspector.</p> <p>Irish Water should submit a report to the Agency on or before 02/03/2022 detailing how it has dealt with the issues of concern identified during this audit.</p> <p>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.</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>		