

# 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	
<b>Name of Installation</b>	Mallow
<b>Organisation</b>	Irish Water
<b>Scheme Code</b>	0500PUB1313
<b>County</b>	Cork
<b>Site Visit Reference No.</b>	SV25802

Report Detail	
<b>Issue Date</b>	14/09/2022
<b>Prepared By</b>	Criona Doyle

Site Visit Detail			
<b>Date Of Inspection</b>	18/08/2022	<b>Announced</b>	Yes
<b>Time In</b>	10:30	<b>Time Out</b>	12:30
<b>EPA Inspector(s)</b>	Criona Doyle		
<b>Additional Visitors</b>	Inland Fisheries Ireland: Andrew Gillespie		
<b>Company Personnel</b>	Irish Water: Pat Britton, Tommy Roche.  Cork County Council (acting under service level agreement to Irish Water): Damien McMahan; Pauline McAree, Frances Whoriskey.		

## > Summary of Key Findings

- (1) The discharge of water treatment sludge to the River Blackwater should cease immediately.
- (2) Irish Water should implement an action programme to improve the sludge handling facilities at the Mallow Water Treatment Plant.

## > Introduction

The Mallow Regional PWS produces on average 2,400m<sup>3</sup>/d and serves a population of approximately 5,000. Following changes to the supply area in 2022 the plant is now serving the area south of Mallow town therefore the EDEN figures (volume 3,587m<sup>3</sup>/d and population 8,460) are incorrect and should be updated. Treatment includes coagulation with poly aluminium chloride and polyelectrolyte, clarification, rapid gravity filtration, final water pH correction, chlorination and fluoridation.

On 26/07/22 Irish Water notified the EPA that a complaint had been received from a member of the public relating to a discharge to the River Blackwater from the Mallow Water Treatment Plant at Ballyellis. Irish Water outlined to the EPA that the investigation had concluded that there was nothing unusual in the day to day process operation at the plant in the days up to and including the day of the complaint. Irish Water also outlined that the outflow of process wash water has been an issue and a cause of complaint in the past in particular at times of low water levels in the river. On the day of the audit the complainant had not been contacted with an update on the outcome of the investigation and the proposed remedial actions.

## > Supply Zones Areas Inspected

The audit focused on the treatment and management of the sludge being generated on site and the supernatant discharge to the River Blackwater.

The alarm setpoints for the filtration and chlorination stages were also inspected.



## 1. Filtration

	Answer
1.1	Are the filters designed and managed in accordance with EPA guidance? <b>No</b>
<b>Comment</b>	
<p>There are 3 no. rapid gravity filters on site. The filter media design is composed of 650mm of sand over a 150mm gravel layer. The media depth in the filters is currently reported to vary from 680mm to 750mm which is less than the recommended minimum of 1,000mm specified in the <i>EPA Water Treatment Manual: Filtration</i>.</p> <p>On the day of the audit the following turbidity levels were observed: Filter 1 0.026 NTU; Filter 2 0.048 NTU and Filter No. 3 0.049 NTU and final water at reservoir 0.029 NTU, which is satisfactory.</p> <p>There is a turbidity alarm setpoint of 0.25 NTU on each of the individual filter turbidity monitors which triggers automatic plant shutdown (900 sec delay).</p> <p>There are no marker posts installed in the filters to allow visual observation of the depth of the filter media.</p>	



## 2. Management and Control

2.1

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

**Answer**

No

**Comment**

Two raw water sources are in use at the Mallow WTP. The Clyda River provides 85% of the raw water while the on site borehole provides 15%. Prior to the audit Irish Water confirmed that the protozoal log treatment requirement for the river source was 3 log requirement which is achieved based on the current treatment stages of coagulation, clarification and filtration. The raw water from the borehole undergoes chlorination only. Irish Water could not confirm the protozoal log treatment requirement for the borehole source at the audit.

3.1

	Answer
Is sludge arising from the treatment processes adequately managed?	No
<b>Comment</b>	
<p>A single chamber sludge holding tank with a storage volume of 116m<sup>3</sup> is provided at Mallow WTP. Settled sludge (57.6m<sup>3</sup>/d) from the 2 no. settlement tanks is drawn off by an automated sludge bleed process and discharged to the sludge holding tank. There are 3 no. rapid gravity filters at the WTP. One filter is backwashed every day discharging 81.6m<sup>3</sup>/d of backwash water to the sludge holding tank. On site monitoring instrumentation discharges a further 24m<sup>3</sup>/d to the tank. The combined total daily discharge to the sludge holding tank is estimated at 163m<sup>3</sup>/d.</p> <p>The sludge holding tank provides limited settlement of the sludge with the heavier material accumulating on the bottom of the tank and the supernatant is discharged to the River Blackwater. There is no continuous monitoring of the turbidity of the supernatant in the sludge holding tank or of the discharge to the River Blackwater. There is no flow meter on the discharge to the River Blackwater. Records provided prior to the audit for 2021 and 2022 indicate 66m<sup>3</sup> of sludge was removed off site every 2 to 3 months and transported to the Limerick Waste Water Treatment Plant.</p> <p>On the day of the audit a backwash of Filter No. 1 was undertaken and the subsequent discharge of backwash water to the sludge holding tank was observed to be mixing with the settled sludge on the base of the tank. The water being discharged from the sludge holding tank was observed to be highly coloured. The resulting discharge to the River Blackwater was also observed to be highly coloured. The audit indicated that current sludge treatment infrastructure at the Mallow WTP is providing insufficient sludge settlement and sludge is being discharged to the River Blackwater.</p> <p>At the audit Cork County Council and Irish Water outlined that the following interim remedial works were planned: (1) desludging of the sludge holding tank to be completed by end of August 2022; (2) installation of baffle and decanting arm by end of September 2022 to increase solid retention in the tank; (3) the frequency of sludge removal from the sludge holding tank is to be increased to 2 times per month until the interim works were completed; (4) following the installation of the decanting arm it is proposed that a revised frequency for optimum desludging will be implemented.</p> <p>The following long term remedial measures are being examined by Irish Water:</p> <p>(1) Connection of sludge holding tank to the foul sewer to facilitate sludge disposal at the Mallow Waste Water Treatment Plant. At the audit it was outlined a proposal had been developed in 2018 to link the sludge tank to the foul sewer but this plan was not progressed. This option is now being re-examined. However, further assessment needs to be undertaken by Irish Water to identify the scope of works and to ensure that the discharge of the sludge from the water treatment plant can be accommodated at the waste water treatment plant. No date was available for when the scope of works or timeframe for completion for this option would be available.</p> <p>(2) Installation of new wash water equalisation / settlement tank for separation of sludge and supernatant is also being examined as part of major upgrade works for the Mallow WTP which are currently at scoping stage. No estimated date was available for this remedial option.</p>	

## Recommendations

<b>Subject</b>	Mallow Audit 18/08/22	<b>Due Date</b>	14/10/2022
<b>Action Text</b>	<p><b>Recommendations</b></p> <p><b>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.</b></p> <ol style="list-style-type: none"> <li>1. Irish Water should review the current methods of handling and disposal of water treatment sludge to ensure that the practice is not in contravention of the Waste Management Act 1996 – 2013. The discharge of water treatment sludge to receiving water, where practiced should cease immediately. Leachate from stored drinking water sludge should not give rise to environmental pollution.</li> <li>2. Irish Water should provide a progress update on the interim remedial works to include: (i) installation of decanter arm to increase sludge retention in the tank (ii) increase in sludge removal frequency (iii) desludging of tank.</li> <li>3. Irish Water should submit an action programme with timeframes for the proposed long term remedial works to improve the sludge handling facilities at the Mallow WTP.</li> <li>4. Irish Water should assess the impact of the discharge of the supernatant on the water quality of the River Blackwater to ensure it is not having a negative impact on the receiving water and liaise with Inland Fisheries Ireland (IFI) and National Parks and Wildlife Service (NPWS).</li> <li>5. Irish Water should provide an update to the complainant on the outcome of the investigations and details of the proposed remedial works.</li> <li>6. Irish Water should liaise with Cork County Council Environment and Planning Section to determine if a discharge license is required for the supernatant discharge to the receiving waters from the Mallow WTP.</li> <li>7. Irish Water should examine the feasibility of (a) increasing the depth of the filter media to meet the requirements of the <i>EPA Water Treatment Manual: Filtration</i> and (b) install depth marker posts.</li> <li>8. Irish Water should confirm the protozoal log treatment requirement for the borehole source.</li> <li>9. Irish Water should update the data on the EPA's EDEN portal in terms of the population served and daily volume produced following the reconfiguration of the area being served from the Mallow PWS.</li> </ol> <p><b>Follow-Up Actions required by Irish Water</b></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. This report has been reviewed and approved by Regina Campbell, Drinking Water Team Leader.</p> <p>Irish Water should submit a report to the Agency on or before 14/10/22 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. Please quote Compliance Plan DW20220096 in any future correspondence in relation to this Report.</p>		