

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	Allow Regional
Organisation	Irish Water
Scheme Code	0500PUB1101
County	Cork
Site Visit Reference No.	SV25874

Report Detail	
Issue Date	20/09/2022
Prepared By	Criona Doyle

Site Visit Detail			
Date Of Inspection	23/08/2022	Announced	Yes
Time In	10:43	Time Out	12:04
EPA Inspector(s)	Criona Doyle Regina Campbell		
Additional Visitors	Inland Fisheries Ireland: Andrew Gillespie.		
Company Personnel	Irish Water: Phil Evans; Pat Britton; Tommy Roche. Cork County Council (acting under service level agreement to Irish Water): Jason O'Donoghue; Sean McAuliffe; Pauline McAree.		

> Summary of Key Findings

(1) The audit found that sludge was discharged to the River Allow due to high loading of the sludge treatment facilities at the Freemount Water Treatment Plant on 05/08/22.

(2) Irish Water should implement an action programme to improve the sludge handling facilities at the Freemount Water Treatment Plant to prevent a reoccurrence of this issue.

(3) A clean up of the river bed local to the discharge point should be undertaken by Irish Water in response to the recent sludge incident. Irish Water should liaise with Inland Fisheries Ireland and the Local Authority Waters Programme in relation to the clean up operation.

> Introduction

The Allow Regional PWS produces on average 2,145 m³/d of treated water and serves a population of 3,370 (EDEN figures). Treatment at the Freemount Water Treatment Plant includes coagulation with poly aluminium chloride and polyelectrolyte, clarification, rapid gravity filtration, fluoridation and chlorination.

A complaint was received by Cork County Council (CCC) Environment Section on Tuesday 09/08/22 from the Local Authority Waters Programme (LAWPRO) in relation to an alleged discharge from the Freemount Water Treatment Plant (WTP) to the River Allow. The EPA were also contacted by LAWPRO on the 09/08/22 in relation to the alleged discharge. The complaint was forwarded by CCC Environment Section to the Water Services Section of CCC on 09/08/22 for investigation.

> 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 Allow. The chlorination disinfection system and alarm setpoints were also inspected.



1. Disinfection

		Answer
1.1	Is the residual chlorine monitored at a suitable sample location after contact time has been completed?	No
Comment		
<p>A copy of the contact time calculation was submitted subsequent to the audit on 24/08/22. The rising main and reservoir were included in the contact time calculation. The final water residual chlorine monitor is located at the Freemount WTP which is before the rising main and the reservoir and it therefore not at a suitable location to verify contact time is being achieved.</p>		

2.1

	Answer
Is sludge arising from the treatment processes adequately managed?	No
Comment	
<p>The main sludge holding tank (volume 110m³) is composed of two chambers and provides settlement to allow the separation of the sludge and supernatant. It was built in the early 1970's.</p> <p>Settled sludge is drawn off by an automated sludge bleed regime from each of the 3 no. settlement tanks and discharged to the main sludge holding tank. Backwash water from the filter backwashing process is also discharged to this tank. Filters are backwashed every 72 hours on a timed basis resulting in one filter being backwashed each day discharging approximately 50m³ of wastewater to the sludge holding tank.</p> <p>There are also 2 no. above ground steel sludge holding tanks (12m³ each) which were installed in 2019 to provide additional storage capacity and additional settlement of the supernatant. There are 3 no. submersible pumps located on the bottom of the sludge holding tank that pump the sludge to the steel tanks for further settlement. The operation of these pumps can cause resuspension of the sludge. There is a turbidity monitor on the supernatant outlet from the steel tanks and a water level monitor in the steel tanks. The supernatant from the steel tanks is discharged to the River Allow via the same outlet as the main sludge tank.</p> <p>There is continuous monitoring of the turbidity of the supernatant in the sludge holding tank from a monitor located adjacent to the decanting arm. The turbidity trend cannot be viewed on site but it was outlined at the audit that the data is stored on the system for the previous 3 weeks and can be retrieved. There is an actuated valve on the outlet from the main sludge holding tank to control the supernatant discharge to the River Allow from the decanting arm. There is a turbidity alarm setpoint of 10 NTU above which the valve automatically closes and shuts down the discharge to the River Allow.</p> <p>Records confirm that prior to the incident sludge was typically removed off site for treatment approximately every 10 days (56 to 87m³), with one load being taken from the main sludge holding tank and 1 load from the steel tanks.</p> <p>At the audit the sludge was seen to be settling on the bottom of the main sludge holding tank and a layer of supernatant was visible on top of the sludge. A scheduled backwash had taken place at 9am on the morning of the audit prior to the audit commencing. At the time of the audit the turbidity monitor on the sludge holding tank was reading 2.08 NTU the valve was open and discharge of supernatant was taking place. While the turbidity on the outlet from the steel tanks was 2.049 NTU. It was not possible to review the turbidity trend data from the time of the backwash at the audit. There is no flow meter on the discharge to the river.</p> <p>There is potential for the overflow of wastewater and sludge to the River Allow when the actuator valve is closed by overtopping of the weir on the supernatant outlet.</p> <p>Irish Water indicated a number of remedial works were being investigated to improve the sludge treatment process including: (i) replacement of the submersible pumps with suction pumps; (ii) modifications to the inlet of the decanting arm to assist with settlement and to reduce the resuspension of the sludge and (iii) addition of polyelectrolyte to the sludge to improve sludge settlement.</p> <p>The recent incident on 05/08/22 – 10/08/22 indicates that the sludge arising from the treatment process is not being adequately managed.</p>	



3. Site Specific Issues

3.1

	Answer
Was the sludge incident suitably alerted to plant operators ?	No
Comment	
<p>A complaint was received by Cork County Council (CCC) Environment Section on Tuesday 09/08/22 from the Local Authority Waters Programme (LAWPRO) in relation to an alleged discharge from the Freemount WTP to the River Allow and forwarded to the Water Services Section of CCC for investigation.</p> <p>On 10/08/22 a Cork County Council Water Services Engineer visited the site and observed that the sludge tank was very full following an unplanned desludge of the 3 no. settlement tanks on Friday night 05/08/22 in response to the rising of the sludge blanket. Normally a deep desludge is undertaken on a six week frequency but this had not occurred over the summer as the normal caretaker was on leave. The 2 no. steel storage tanks were not operational at the time and 1 no. submersible pump was offline.</p> <p>There was no sludge removal offsite between 05/08/22 and 10/08/22 following the desludging of the sedimentation tanks. The online turbidity monitor shuts the actuated valve on the discharge when the turbidity exceeds 10 NTU but there is potential for the overtopping of the weir when the valve is closed if the water level in the main sludge holding tank is high. There is no high level alarm for high water level in the sludge tank and no alarm generated to site staff when the 10 NTU limit on supernatant is triggered. Prior to the incident the water level and sludge level in the tank was not being regularly monitored or recorded.</p> <p>Once CCC staff were alerted to the issue on 09/08/22 the following actions were undertaken:(1) Daily backwash was postponed on 10/08/22; (2) 84m³ of sludge was removed from sludge tank on 10/08/22;(3) CCC staff took surface water samples from the River Allow on 10/08/22 upstream and downstream of the supernatant discharge point; (4) Inland Fisheries Ireland were notified of the incident and CCC met with Inland Fisheries Ireland on the afternoon of 10/08/22 to examine the river; (5) 84m³ of sludge was removed on 11/10/22; (6) Remedial works were undertaken on the 2 no. steel sludge tanks to repair the turbidity monitor and the submersible pump was fixed.</p> <p>At the audit CCC and Irish Water provided details of the proposed short term and long term remedial actions to prevent a reoccurrence of this incident. Proposed Short Term Remedial Actions: (1) CCC have developed a daily checklist to ensure that waste water level in sludge tank is recorded daily to highlight when sludge tankering offsite is required.(2) Irish Water are examining the option of installing a new turbidity monitor in the main sludge tank, with a floating probe, to ensure more representative monitoring of turbidity of the supernatant. (3) the sludge removal frequency had been increased with 4 loads of sludge being removed per week. (4) Sedimentation tanks are to be desludged regularly to ensure that the sludge tanks can accommodate the sludge being generated from deep cleaning operations.</p> <p>Proposed Long Term Remedial Actions: (1) Irish Water are examining the option of installing new pipework and suction pumps to optimize the sludge draw off in order to reduce the disturbance of settled sludge when pumping the sludge from the main sludge holding tank to the 2 no. above ground steel sludge tanks. This proposal is currently at design stage with the improvement works expected to be completed by end of 2022. (2) Trials have commenced to determine if the addition of polyelectrolyte to the sludge treatment process could assist with optimisation of the sludge settlement. An assessment is required to ensure that this will not negatively impact on the quality of the supernatant being discharged to the River Allow. The outcome of the trial is expected to be available in approximately 1 month.</p>	

Recommendations

Subject	Allow Regional Audit 23/08/22	Due Date	20/10/2022
Action Text	<p>Recommendations</p> <p>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.</p> <ol style="list-style-type: none"> 1. Irish Water should review 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 – 20013. 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. 2. Irish Water should undertake a clean up of the river bed local to the discharge point in response to the recent sludge incident. Irish Water should liaise with Inland Fisheries Ireland and the Local Authority Waters Programme in relation to the clean up operation. 3. Irish Water should ensure that a standard operating procedure is in place, and that operators are appropriately trained, to deal with instances of high loading to the sludge treatment facilities at the Freemount Water Treatment Plant. 4. Irish Water should assess the impact of the discharge of the supernatant on the water quality of River Allow to ensure it is not having a negative impact on the receiving water and liaise with Inland Fisheries Ireland, National Parks and Wildlife Service and the Local Authority Waters Programme on the outcome of the assessment. 5. 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 receiving waters from the Freemount WTP. 6. Irish Water should develop and implement an action programme to improve the sludge handling facilities at the Freemount WTP. 7. Irish Water should relocate the turbidity monitor on the supernatant to an appropriate location to ensure samples representative of the discharge from the sludge holding tank are being continuously monitored. 8. Irish Water should submit the turbidity trend for the supernatant from the sludge holding tank for the 3 weeks prior to the date of the audit. 9. Irish Water should ensure that the residual chlorine monitor is installed at a suitable location to verify that contact time is being achieved. <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 Regina Campbell, Drinking Water Team Leader.</p> <p>Irish Water should submit a report to the Agency on or before 20/10/22 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 DW2018175 in any future correspondence in relation to this Report.</p>		