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	Gorey Regional Creagh
Organisation	Irish Water
Scheme Code	3300PUB1512
County	Wexford
Site Visit Reference No.	SV22740

Report Detail

Issue Date	12/10/2021
Prepared By	Derval Devaney

Site Visit Detail

Date Of Inspection	07/09/2021	**Announced**	Yes
Time In	10:00	**Time Out**	12:30
EPA Inspector(s)	Derval Devaney Michelle Minihan		
Additional Visitors			
Company Personnel	Wexford County Council operating under SLA to Irish Water: Fionnuala Callery Paul Delahunty Barry Hammel Irish Water: Pat Duggan Samantha Keane Ronan Walsh Health Executive Service (HSE): Kay O'Connor		

Summary of Key Findings

1. The EPA was not notified of incidents which occurred at the Gorey Regional Creagh water treatment plant from 19 - 24 August 2021 and 28 - 30 August 2021. These incidents caused inadequately disinfected water to enter the Gorey Regional Creagh Public Water supply during these periods.

2. Wexford County Council (WCC) staff failed to follow its Incident Response Procedure to ensure the incidents were escalated promptly to Irish Water and to ensure that the HSE was consulted to assess potential risk to human health. In addition, a high priority turbidity alarm on the dissolved air flotation filtration treatment unit that was sent to various Wexford County Council staff over the weekend of 21st August 2021 was not responded to. There is no automatic plant shutdown at the water treatment plant to ensure inadequately treated water does not enter the network should there be no response to a critical alarm.

3. Wexford County Council and Irish Water (IW) failed to respond in a timely manner to complaints which were received relating to discolouration and illnesses. Sampling at the plant for Cryptosporidium and in the network for chlorine residuals occurred on 26th August 2021, one week after the incident had commenced. Microbiological sampling in the network did not take place until Monday 30th August 2021.

4. Many alarms on critical control equipment at the plant were found to be set incorrectly which meant alarms were not triggered when malfunctions occurred at the plant and the water quality was compromised.

5. During the audit the Heath Service Executive (HSE) stated it had 25 confirmed cases of illness, which included 18 cases of VTEC (Verotoxigenic Escherichia coli) infection, in the community served by the Gorey Regional Creagh PWS. As the cases are unprecedented they believe that there is a probable link to the water supply given the size of the outbreak and compiling food histories of the affected populations.

6. The audit found significant failings in management oversight, operational control and responsiveness by IW and WCC at Gorey Creagh Regional Water Treatment Plant in terms of their respective roles to deliver safe and secure drinking water.

Introduction

The Gorey Regional Creagh Public Water Supply (PWS) serves approximately 7,241 people in Co. Wexford and the Gorey Regional Creagh Water Treatment Plant (WTP) operates 24 hours a day extracting a volume of 120 m3/hour from the River Bann. The Gorey public water supply is sourced from two surface water intakes at Kilmichael and Pallis. Both of the surface water abstractions are mixed coming in to the treatment plant. Treatment includes pH correction on the inlet pipe to the DAFF using sodium hydroxide, Dissolved Air Flotation, slow sand filtration, pH correction with lime, disinfection using sodium hypochlorite and fluoridation. There are no reservoirs on the network.

This audit was carried out in response an incident at the plant which was reported to the EPA on 26th August 2021. From Thursday 19th August – Tuesday 24th August 2021 there was a malfunction of the disinfection system due to a power outage which resulted in inadequately disinfected water entering the water supply network over a period of five days. In parallel, heavy rainfall over the weekend of 21st August resulted a deterioration of the water quality of the River Bann. The filtration treatment system in place at the plant did not sufficiently treat the water coming into the plant and this also compromised the water quality entering supply from Sunday 22nd August – Tuesday 24th August 2021.

Supply Zones Areas Inspected

The audit consisted of a virtual audit by video conference with Irish Water and Wexford County Council on 7th September 2021 with EPA inspectors Michelle Minihan and Derval Devaney. The HSE was also represented due to the incidents of illnesses recently reported in the community served by the Gorey Regional Creagh PWS.

1. Incident Management

		Answer
1.1	Was the incident suitably alerted to the plant operators, escalated and managed in order to maintain water quality and protect public health?	No
	Comment	

1. The EPA was notified on 26/8/21 of an incident at Creagh WTP. There was a short power failure and a chlorine pump failure which compromised the disinfection system at the WTP from the evening of Thursday 19/8/21 – Tuesday 24/8/21. This resulted in inadequately disinfected water entering the water supply network over five days.

2. In parallel, heavy rainfall over the weekend of 21st August resulted a deterioration of the water quality of the River Bann, which supplies the Gorey Regional Creagh PWS. The filtration treatment system in place at the Creagh WTP did not sufficiently treat the highly turbid water coming into the plant and this also compromised the water quality with respect to the Cryptosporidium treatment barrier entering supply from Sunday 22/8/21 – Tuesday 24/8/21.

3. WCC staff were at the plant on Friday 20/8/21 and Sunday 22/8/21 but the disinfection malfunction was not addressed nor escalated for attention at this time. WCC staff were alerted by text of a high priority alarm relating to high turbidity leaving the DAFF unit at the WTP on the 21/8/21, but the alarm was not responded to or escalated for action. There is no automatic shutdown of the plant when water quality is compromised, which meant inadequately treated water continued to enter the network.

4. Alarms on critical equipment, such as the turbidity meters on the slow sand filters and chlorine monitors on the disinfection system, were incorrectly set and were not given an appropriate call-out priority, which meant there was no alarm sent by text to alert WCC from 19/8/21 of issues in relation to these critical equipment. The DAFF and disinfection system malfunctions at the plant were not addressed and rectified until 23/8/21 and 24/8/21 when a contractor attended site at the request of WCC operational staff.

5. The incident response procedure was not followed by WCC which meant senior staff within WCC, Irish Water (IW), the Heath Executive (HSE) and EPA were not notified of the malfunctions at the water treatment plant until Thursday 26/8/21 when reports of illness prompted WCC senior staff to investigate operations at the plant. IW and WCC verified during the audit that the malfunctioning pump on the disinfection system had been fixed and repair works were also carried out on the coagulation and filtration system on 23/8/21. However, as the incidents were not escalated with priority, monitoring did not commence until 26/8/21, a week from the date the disinfection incident commenced. Further information on the monitoring carried out is detailed in Section 7 of this report.

6. Data provided by IW shows a water quality complaint was received on 22/8/21 and a complaint in relation illness and three further water quality complaints were received on 23/8/21. These were addressed by scouring of the area on 24/8/21 and taking microbiological samples at the complainant's address on 25/8/21. Satisfactory chlorine residuals and clear E. coli and total coliform results were obtained from the location. A second complaint mentioning illness was received by IW on morning of 26/8/21. This prompted further investigations into the operations at the WTP by WCC Senior staff. It was at this point that the issues with the chlorine system malfunction and elevated turbidity over the previous weekend were identified by more senior staff in WCC. WCC notified IW of the issue. IW and WCC immediately investigated the issue and determined that the issues at the WTP had been resolved by the 24/8/21 and water quality from then was satisfactory. Consultation with the HSE was initiated on 26/8/21.

7. Despite IW and WCC stating that water quality was satisfactory from 24/8/21, the EPA's review of SCADA records illustrate that chlorine levels in the final water at the plant dropped below concentrations that would ensure adequate disinfection from 28 - 30/8/21. The HSE and the EPA were not notified of this 2nd incident. WCC stated its calculations can show that disinfection was adequate during this time, however these calculations for this time period were not available on the day of the audit. WCC and IW is responsible for producing a safe and secure water supply and should have sufficient management oversight of the operations at Creagh WTP.

8. As of 6/9/21 IW received 35 complaints relating to poor water quality and many also related to illness during that period. During the audit the HSE confirmed that illnesses had been reported from the community served by Gorey Regional Creagh PWS (see Section 7). The HSE described the level of cases reported as unprecedented and there was a probable link to the water supply given the size of the outbreak and compiling food histories. The management of the incident highlights significant failings by IW and WCC which must be addressed as a matter of urgency.

2. Source Protection

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

Comment

There are two abstraction points from the River Bann that supply the Gorey Regional Creagh Water Treatment Plant; at Pallis and Kilmichael. The Pallis intake turbidity trends were not included in data submitted to the EPA as requested for there was a signal issue which caused the turbidity data to be frozen on SCADA.

The absence of this data prevented corrective actions being taken to address the increasing turbidity in the raw water.

3. Coagulation Clarification Flocculation (CFC) Stage

		Answer
3.1	Are the CFC processes appropriately controlled?	No

Comment

1. Prior to water entering slow sand filter numbers 5 - 9, it is treated via a Dissolved Air Flotation and Filtration (DAFF) unit. Approx. 85m3 goes to the Dissolved Air Flotation and Filtration (DAFF) plant for coagulation, flocculation, clarification and filtration. pH correction is carried out on the inlet pipe to the DAFF using sodium hydroxide. Aluminium sulphate is dosed on the inlet pipe next to the DAFF and a polyelectrolyte coagulant aid is dosed at the mixing chamber within the DAFF.

2. A high priority alarm was raised via text on the evening of Saturday 21st August 2021 alerting a number of Wexford County Council (WCC) staff of water with high turbidity exiting the DAFF unit. However the alarm was not responded to.

3. WCC staff attended the plant on Sunday 22nd August 2021 but did not notice the issues at the DAFF unit. On Monday 23rd August 2021 WCC staff noticed that a valve was stuck open on the DAFF unit following a backwash. A contractor was contacted and attended the WTP on Tuesday 24th August 2021 and carried out repair works to the DAFF valve.

4. Over the weekend of the 21st August 2021 there was heavy rainfall which resulted in raw water with elevated turbidity entering the water treatment plant. Irish Water stated that this also impacted the water quality leaving the DAFF unit and entering slow sand filters numbers 6 - 9 (typically one SSF is kept out of service for cleaning). Irish Water stated that the Coag Sense Auto Coagulation Dosing unit, which operates on an automatic mode and doses aluminium sulphate using a streaming current sensor, failed to adjust the dosing levels at the coagulation stage (prior to entry to the DAFF unit) to account for the deterioration in raw water quality. IW stated that this also caused elevated turbidity leaving the slow sand filters.

5. During the audit, WCC and Irish Water (IW) stated that the target pH for optimum coagulation was 6.2 - 6.5 and sodium hydroxide is flow proportionally dosed to achieve this concentration via duty and standby pumps. WCC and IW could not verify how the pH dose is controlled and if it is linked to the pH monitor on-site.

6. Despite there being a turbidity monitor on the DAFF unit, it is backwashed based on time and not based on turbidity levels.

7. Wexford County Council stated that were no daily aluminium tests being carried out at the plant to verify compliance prior to entry into the network.

8. Wexford County Council stated during the audit that the spreader bar which is to ensure an even dose of polyelectrolyte flocculant aid into the DAFF unit had some orifices which were blocked.

4. Filtration

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

Comment

Approx. 40m3/hr of water from the inlet works bypasses the DAFF unit and flows directly to SSFs No.s 1 - 4 for filtration. Only two of these filters are in use at any one time to allow for a cycle of cleaning. As 15m3 flows to each filter; 10m3/hr of water feeding SSFs No.s 1-4 overflows to waste.

The slow sand filter (SSF) media is generally cleaned once a month and media on SSFs 1 - 4 were fully replenished in July 2015. During the audit Wexford Co. Co. and Irish Water could not confirm when the sand media in SSFs No's 5 - 9 were last fully replenished. The EPAs filtration manual recommends replenishment of the filter media is carried out every 2 - 5 years to ensure optimum performance and the minimum design depth of 0.6 m sand is present.

The nine SSFs are cleaned when WCC observes that water levels are rising in the filters. While there is an online turbidity monitor on each SSF which is linked to SCADA, there is no continuous headloss monitor, continuous flow rate monitor on the outflow from the SSFs and continuous water level monitor to determine the filter loading and when each filter should be cleaned.

		Answer
4.2	Does monitoring indicate that the filters are operating effectively?	No

Comment

Turbidity graphs from SCADA for slow sand filter (SSF) numbers 6 - 9 (which are supplied by water exiting the DAFF unit) shows from 22nd - 24th August 2021 these filters did not operate effectively. During this period turbidity post filtration rose to levels of between 0.8 NTU and 2 NTU. WCC and IW believe that the turbidity monitors do not have the capability to provide readings of greater than 2 NTU concentration.

In addition, the alarm settings on all of the nine SSFs were set incorrectly meaning Wexford County Council staff were not alerted to the elevated turbidity leaving the SSFs during this time. WCC and IW confirmed that these critical alarms were not set to a high priority, meaning that even if the alarms did trigger, they would not have alerted staff outside of normal working hours.

The turbidity alarms on the SSFs were adjusted by Irish Water post the incident where they are now given a high priority setting. The high turbidity alarm is set to alarm at 0.25 NTU after 900 seconds (15 minutes) and the high, high turbidity alarms at 0.5 NTU after 120 seconds (2 minutes).

5. Disinfection

		Answer
5.1	Does the trend in chlorine residual at the treatment plant indicate adequate and stable levels of disinfection?	No

Comment

1. The two streams of filtered water; from SSFs 1 - 4 and from the filters which are fed from the DAFF unit (SSFs 5 - 9) enter a chamber where water is dosed with sodium hypochlorite to disinfect it.

Sodium hypochlorite is dosed using three chlorine pumps and bases its dose on the chlorine residual control monitor. One pump is a duty pump, another a standby pump which are both linked to SCADA. The third pump kicks in, dosing at a fixed rate, if the chlorine control monitor located in the dosing chamber falls below a target dose of 0.7 mg/l. The 3rd pump is not linked to SCADA.

2. Chlorinated water then enters Clear Water Tank (CWT) 1, where Irish Water has calculated that a minimum free chlorine concentration of 0.85 mg/l is required in this tank to ensure adequate disinfection. Some water exits this tank and serves the distribution network. There are two chlorine monitors (Chlorine Validation Monitor 1 & 2) on the outlet of this tank serving the distribution network which are present to validate that chlorine levels are adequate for optimum disinfection.

Some chlorinated water also exits CWT 1 and enters CWT 2 before it enters the distribution network and IW has calculated that the minimum free chlorine required in this tank is 0.55 mg/l for adequate disinfection. However there is no chlorine monitor on the outlet of this tank to validate that the minimum chlorine concentration requirement of 0.55 mg/l.

3. On the evening of 19th August 2021 a brief power failure and a chlorine pump failure occurred, where faulty pressure sensors resulted in very little or no chlorine (0.05 mg/l - 0 mg/l) being dosed into the final water up until 24th August 2021. WCC staff did not record chlorine readings at the plant on 20th and 21st August. On 22nd August, the daily records recorded at the plant document that chlorine was insufficient at 0.06 mg/l and 0.05 mg/l. The inadequately disinfected water was not reported or escalated for action by WCC at this time. On Monday 23rd August the daily records show chlorine at the plant remained low at 0.08 mg/l and 0 mg/l. On August 24th chlorine levels increased at the dosing chamber to 0.9 mg/l, after works were carried out on the chlorine dosing pumps. However WCC stated there was a fault with the sample line pump serving the two chlorine validation monitors on the outlet of CWT 1 which were not repaired until August 27th. WCC and IW did not carry out a risk assessment of this incident at the time. WCC and IW could not confirm that adequate chlorine contact time was being achieved for water entering the supply when they consulted with the HSE on 26th August informing them that the plant was operating satisfactory from 24th August.

As a result of the malfunctions not being notified and escalated within WCC and IW until 26th August, sampling to determine the impact of the incident was not conducted until after the incidents had passed.

4. On August 28th - August 30th the chlorine dose and chlorine concentrations exiting CWT 1 dropped below the required concentration of 0.85 mg/l to ensure adequate disinfection while water continued to enter the distribution network. WCC and IW stated that a low chlorine alarm was received by WCC staff on 29th August and an investigation showed that there was an issue with Chlorine pump 1. This pump was taken out of commission and pump 2 was placed on duty with pump 3 acting as a supplementary pump. IW and WCC stated that the HSE and EPA were not notified of this incident as the chlorine contact time was verified and water remained disinfected. At the time of the audit the EPA had not received any such data to validate this claim and the HSE stated during the audit that it was not made aware of such incident. WCC and IW stated that a contractor attended the plant on Monday 30th August to carry out repairs on the chlorination system. Bacteriological samples not were taken in the distribution network until 30th August, when this work had been completed. The results were clear.

6. Management and Control

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

Comment

There are currently no automatic plant shutdowns in place to prevent inadequately treated water entering the distribution network.

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

Comment

1. Since the incidents the chlorine alarms have been reset to high priority meaning an alarm will be sent by text via a cascade system to a number of WCC staff to include outside of normal business hours.

2. However, the Creagh WTP low chlorine residual alarm setting of 0.7 mg/l after 120 seconds remains too low. This is because 0.85 mg/l is the required minimum chlorine concentration post CWT 1 to ensure adequate disinfection.

3. The high alarm settings on both chlorine residual validation monitors 1 & 2 of 1.3 mg/l and high high alarm of 1.4 mg/l has a time delay of 1200 seconds (20 minutes) which is too long and needs to be adjusted downwards to allow adequate time for WCC staff to respond to ensure elevated levels of chlorine do not enter the network and present a risk to public health.

4. During the audit the EPA noted that the list of alarms at the plant indicated that an auto shutdown on the chlorination system would occur if there was a critical alarm on the chlorine disinfection panel while flow would continue to enter the distribution network. This set-up presented a risk of undisinfected water being supplied to consumers. WCC and IW confirmed on 13 September that this auto-shutdown of the disinfection system had been disabled.

7. Drinking Water Quality

		Answer
7.1	Have relevant failures to comply with the requirements of the European Union (Drinking Water) Regulations 2014, as amended, been notified to the EPA?	No

Comment

1. Wexford County Council and Irish Water failed to promptly notify the HSE and EPA of an incident which occurred at the Gorey Regional Creagh water treatment plant from 19 - 24 August 2021. This incident caused inadequately disinfected water to enter the Gorey Regional Creagh Public Water supply during this period.

2. A complaint relating to discoloured water was made to IW on 22nd August 2021. Wexford County Council (WCC) stated it investigated the complaint and no issue was observed. Three further complaints relating to poor water quality were submitted to IW and WCC responded stating that it suspected this was linked to a known water outage.

3. In response to a complaint of illness received by Irish Water on Monday 23rd August 2021, WCC arranged a sample for E coli and coliform to be taken at a complainant's address on Wednesday 25th August. It was free from bacteriological contamination and had a satisfactory free chlorine of 0.57 mg/l. However, this sample was taken two days after IW received the complaint of illness and after the network was scoured on Tuesday 24th August.

4. By the end of 25th August, Irish Water had received 10 complaints relating to water quality (one relating to illness) for the Gorey Regional Creagh PWS. It was not until a 2nd complaint of illness was received by IW on the morning of Thursday 26th August 2021 that WCC carried out more thorough investigation of the complaints received. It was on 26th August that WCC senior staff became aware of the chlorination malfunction at the WTP from reviewing SCADA data for the plant. In response, a Cryptosporidium sample was taken from the final water at the WTP on Thursday 26 – Friday 27th August. This sample returned a clear result.

5. Free Chlorine residual levels recorded at six different locations in the network on 26th August and 27th August were found to be satisfactory.

6. Further samples for Coliform Bacteria and E. coli were taken at two locations on the network on Monday 30th August. Both tests returned clear results and had adequate levels of free chlorine of 0.39 mg/l and 0.56 mg/l respectively. However these samples were taken 11 days after the disinfection incident had commenced at the WTP and four days from the time senior staff in WCC and IW became aware of the malfunctions at the WTP.

7. During the audit WCC stated the entire distribution network has been scoured and 10 houses have been sampled (three on Friday 3rd September, seven on Saturday 4th September and there are four or five more to be sampled in response to complaints of illness received). All 10 samples were clear for bacteriological contamination apart from one sample which detected 1 No. / 100 ml Coliform and a satisfactory free chlorine level of 0.71 mg/l.

8. IW confirmed during the audit that 35 water quality complaints were received from 22 August 2021 - 6th September 2021 and of those 15 related to illness. The HSE confirmed during the audit that the following illnesses had been reported up to close of business Monday 6th September 2021:

- 18 cases VTEC (3 of those are co-infected with campylobacter; 1 is co-infected with rotavirus)
- 1 case of Shigella co-infected with Campylobacter
- 6 cases of Campylobacter

On 7th September the HSE reported one of those cases has been hospitalised.

The HSE described the level of cases reported here as unprecedented and that there was a probable link to the water supply given the size of the outbreak and compiling food histories for the affected population.

Recommendations

Subject	Gorey Regional Creagh PWS Audit 07.09.21	Due Date	12/11/2021

Action Text

Recommendation(s)

Irish Water is responsible for producing a safe and secure supply of drinking water. The audit findings highlight significant failings by Irish Water and Wexford County Council in relation to management oversight, operational control and responsiveness. To address these issues Irish Water should implement the following recommedations as a matter of urgency.

1. Irish Water and Wexford County Council should ensure prompt and timely consultation with the HSE and notification to the EPA of incidents and parametric failures.

2. Irish Water and Wexford County Council should report to the EPA on the implementation of training and internal communications procedures to ensure:

- there is an awareness of what constitutes an incident;
- operational issues and incidents relating to a water treatment plant are effectively communicated and acted upon promptly to prevent risk to human health;
- complaints relating to a public water supply are investigated thoroughly and promptly;
- operation of treatment works and water quality compliance at the water treatment plant and in the network is verified without delay;
- consumers are kept up to date on the matter and are informed of any risk to human health without delay.

3. Irish Water should implement a standard incident response template of actions for Local Authorities and Irish Water to follow when incidents are being notified and complaints received.

4. Irish Water should:

- ensure that chlorine alarm settings are revised further and submitted to the EPA for review;
- submit a timeline for the installation of automatic shutdown of the treatment plant in the event that high priority alarms are not responded to;
- critical control equipment and alarms are linked to SCADA and trends are recorded accurately and archived. This includes the turbidity monitor at the Pallis intake and Chlorine Pump 3 at the disinfection stage.

5. Regarding slow sand filtration Irish Water should ensure that:

- a timeline for replenishment of filter media is submitted. Irish Water should have a programme in place to ensure replenishment of the filter media is carried out every 2 - 5 years to ensure optimum performance and the minimum design depth of 0.6 m sand is present;
- a continuous head loss monitor, continuous flow rate monitor on the outflow from the SSFs and a continuous water level monitor is installed on each filter to determine the filter loading and when each filter should be cleaned;
- it establishes documented quality criteria to outline when the filter is due to be skimmed or resanded.

6. Irish Water should ensure there are daily checks on the following and records of the checks are maintained and available for inspection:

- the disinfection system to ensure it is operating within its validation criteria for adequate contact time and in accordance with EPA guidance (EPA Water Treatment Manual: Disinfection);
- the chlorine dose pumps and chlorine sample lines.

7. Irish Water should ensure that:

- an online residual chlorine monitor is installed at the exit of Clear Water Tank 2, linked to SCADA and alarmed appropriately. Submit confirmation when this action is complete and details of alarm settings;
- chlorine dosing pump 3 is replaced with a flow proportional pump or a pump capable of dosing based on the residual chlorine monitor;
- free residual chlorine levels at the end of the distribution network are maintained at 0.1mg/l. Frequent checks should be carried out in the network at suitable locations a few times per week and recorded in the Daily Logbook.

8. Irish Water should carry out monitoring for:

- Cryptosporidium in the treated water at least monthly throughout the year until such time as a Cryptosporidium barrier at the water treatment plant can be verified;
- aluminium, turbidity, colour, pH, chlorine residual and fluoride daily in the final water at the water treatment plant and record the results in the Daily Logbook.

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 Michelle Minihan, Senior Inspector, Drinking Water Team.

Irish Water should submit a report to the Agency on or before 12th November 2021 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 the Action Reference Number in any future correspondence in relation to this Report.