Annual Environmental Report

2019

Rathcormac

D0200-01

CONTENTS

7 APPENDIX

1 EXECUTIVE SUMMARY AND INTRODUCTION TO THE 2019 AER

This Annual Environmental Report has been prepared for D0200-01, Rathcormac, in Cork in accordance with the requirements of the wastewater discharge licence for the agglomeration. Specified reports where relevant are included as an appendix to the AER.

1.1 ANNUAL STATEMENT OF MEASURES

A summary of any improvements undertaken is provided where applicable.

The following works commenced in 2019 and are ongoing on site. - Removal of existing FBDA system, air feed pipes, supports and supernatant decanting system in SBR Tank No.2. - Constructing a dividing wall across SBR No. 2 to section off a separate area in the tank to provide 150m3 nominal storage capacity. - Mechanical fit out of buffer tank. - Provision of a galvanised mild steel platform c/w access stairway fitted with hand railing and open grid flooring supported off the tank side wall. - 2 No. Duty and Standby Buffer Tank emptying Pumps. - 2 No. Sluice Valves and 2 No. Check Valves on the Pump delivery line. - 1 No.150mm Magmeter and 2 No. 150mm Actuated Kinife Gate Valves for regulating the flow to SBR Tanks. - Instrumentation including Ultrasonic Level Sensor, SBR Common Feed Flow Transmitter and SBR DO Caps. - New Form 1 Panel. - Electrical Install, Automation and Commissioning Works.

1.2 TREATMENT SUMMARY

The agglomeration is served by a wastewater treatment plant(s)

- Rathcormac WWTP with a Plant Capacity PE of 4000, the treatment type is 3P - Tertiary P removal

1.3 ELV OVERVIEW

The overall compliance of the final effluent with the Emission Limit Values (ELVs) is shown below. More detailed information on the below ELV’s can be found in Section 2.

Discharge Point Reference	Treatment Plant	Discharge Type	Compliance Status	Parameters failing if relevant
TPEFF0500D0200SW001	Rathcormac WWTP	Treated	Non-Compliant	Ammonia-Total (as N) mg/l ortho-Phosphate (as P) - unspecified mg/l

1.4 LICENCE SPECIFIC REPORTING INCLUDED IN AER

Assessment / Report	Included in AER
There are no Licence Specific Reports included in the AER.	

2 TREATMENT PLANT PERFORMANCE AND IMPACT SUMMARY

2.1 RATHCORMAC WWTP - TREATED DISCHARGE

2.1.1 INFLUENT MONITORING SUMMARY - RATHCORMAC WWTP

A summary of influent monitoring for the treatment plant is presented below. This monitoring is primarily undertaken in order to determine the overall efficiency of the plant in removing pollutants from the raw wastewater.

Parameters	Number of Samples	Annual Max	Annual Mean
COD-Cr mg/l	12	828	457.17
BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l	12	294	181.67
Suspended Solids mg/l	12	233	130.82
Hydraulic Capacity	N/A	3856	318

If other inputs in the form of sludge / leachate are added to the WWTP then these are included in Section 2.1.5 if applicable.

Significance of Results:

The annual mean hydraulic loading is less than the peak Treatment Plant Capacity. The annual maximum hydraulic loading is greater than the peak Treatment Plant Capacity. Further details on the plant capacity and efficiency can be found under the sectional ‘Operational Performance Summary’.

2.1.2 EFFLUENT MONITORING SUMMARY - TPEFF0500D0200SW001

Parameter	WWDL ELV (Schedule A)	ELV with Condition 2 Interpretation included Note 1	Interim % reduction from influent concentration	Number of sample results	Number of exceedances	Number of with Condition 2 Interpretation included	Annual Mean	Overall Compliance (Pass/Fail)
COD-Cr mg/l	125	250	N/A	12	N/A	N/A	61.31	Pass
BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l	25	50	N/A	12	1	N/A	12.6	Pass
Suspended Solids mg/l	25	62.5	N/A	12	1	N/A	11.62	Pass
pH pH units	9	9	N/A	12	N/A	N/A	7.81	Pass
Ammonia-Total (as N) mg/l	5	6	N/A	12	11	11	36.51	Fail
ortho-Phosphate (as P) - unspecified mg/l	2	2.4	N/A	12	3	2	1.02	Fail

Notes:
1 – This represents the Emission Limit Values after the Interpretation provided for under Condition 2 of the licence is applied

Cause of Exceedance(s):

Consistent Ammonia ELV breaches throughout 2019. The WWTP is under-loaded relative to design capacity and there is difficulty in maintaining a suitable conditions within the process to achieve nitrification on site for Ammonia reduction. Extensive investigations took place to improve compliance by Water Services Staff CCC, IW Process Optimisation and Operations. Following investigations, a number of key operational decisions were made in late 2017 to run the WWTP SBR's under certain conditions of reducing and managing mixed liquors to improve settleability and maintain the site in compliance with WWDL

ELV's for BOD, COD and SS. However this process adjustment did not permit sufficient sludge age to develop for Ammonia reduction to comply with WWDL ELV. Although this took time to stabilise, it has enabled achieving UWWTD compliance in 2018 and 2019. Further improvement works were carried out in Q1 2019 including the upgrade of the existing PLC programme to control and manage sludge wasting and the installation of new MLSS instrumentation. The upgraded PLC system calculates the sludge age based on data from the process, and it automatically controls the wasting regime for optimised process control. To address the issue with Ammonia ELV licence compliance civil works / physical plant modifications were required , approved and commenced in 2019 to ensure process robustness to maintain and improve compliance. The civil works included modifying the middle SBR tank into a balance tank (with feed forward pumps and a mixer) to allow flow control forward to 1 no. SBR for treatment. Construction works commenced in Q2 2019 and works continued for most of 2019. The works were carried out off-line to facilitate works that would maintain performance, effluent quality and treatment capability in the plant. This system is currently being adjusted and monitored to work towards achieving compliance in 2020. The OP ELV breaches were a result of isolated issues with the Ferric Dosing Pumps on site.

Significance of Results:

The WWTP is non compliant with the ELV's set in the Wastewater Discharge Licence. The impact on receiving waters is assessed further in Section 2.

2.1.3 AMBIENT MONITORING SUMMARY FOR THE TREATMENT PLANT DISCHARGE TPEFF0500D0200SW001

A summary of monitoring from ambient monitoring points associated with the wastewater discharge is provided in the sections below. For discharges to rivers upstream (U/S) and downstream (D/S) location data is provided. For other ambient points in lakes, coastal or transitional waters, monitoring data from the most appropriate monitoring station is selected.

The table below provides details of ambient monitoring locations and details of any designations as sensitive areas.

Ambient Monitoring Point from WWDL (or as agreed with EPA)	Irish Grid Reference	River Station Code	Bathing Water	Drinking Water	FWPM	Shellfish	WFD Status
Upstream	180832, 90620	RS18B050300	No	No	Yes	No	Good
Downstream	181295, 90676	RS18B050320	No	No	Yes	No	Good

The table below provides a summary of monitoring results for designated ambient monitoring points. The upstream and downstream annual mean values are shown (mg/l), and the difference between both monitoring stations is given as a percentage of the Environmental Quality Standard (EQS) where relevant.

Parameter Name	Upstream Monitoring Point Location	Upstream Monitoring Point Annual Mean	Downstream Monitoring Point Location	Downstream Monitoring Point Annual Mean	EQS	% of EQS
BOD - 5 days (Total) mg/l	RS18B050300	1.06	RS18B050320	0.775	1.5	-19
Ammonia-Total (as N) mg/l	RS18B050300	0.029	RS18B050320	0.068	0.065	59.8
ortho-Phosphate (as P) - unspecified mg/l	RS18B050300	0.022	RS18B050320	0.016	0.035	-17.7
Nitrite (as N) µg/l	RS18B050300	7.103	RS18B050320			
Total Oxidised Nitrogen (as N) mg/l	RS18B050300	3.18	RS18B050320			
True Colour mg/litre Pt Co	RS18B050300	30.6	RS18B050320			
pH pH units	RS18B050300	7.778	RS18B050320	7.7		
Chloride mg/l	RS18B050300	17.1	RS18B050320			
Dissolved Oxygen % Saturation	RS18B050300	101.2	RS18B050320	102.75		
Suspended Solids mg/l	RS18B050300	5.938	RS18B050320	3.125		
Temperature °C	RS18B050300	11.744	RS18B050320	10.875		
Nitrate (as N) mg/l	RS18B050300	3.12	RS18B050320			
Total Hardness (as CaCO3) mg/l	RS18B050300	85.8	RS18B050320			

Dissolved Oxygen mg/l	RS18B050300	10.72	RS18B050320			
Conductivity @25°C µS/cm	RS18B050300	217.6	RS18B050320			
Alkalinity-total (as CaCO3) mg/l	RS18B050300	64.2	RS18B050320			

Significance of Results:

The WWTP discharge was not compliant with the ELV's set in the wastewater discharge licence.

The ambient monitoring results does not meet the required EQS. The EQS relates to the Oxygenation and Nutrient Conditions set out in the Surface Water Regulations 2009.

A deterioration in water quality has been identified, however it is not known if it or is not caused by the WWTP.

Other causes of deterioration in water quality in the area are unknown.

The discharge from the wastewater treatment plant does not have an observable negative impact on the Water Framework Directive status.

2.1.4 OPERATIONAL PERFORMANCE SUMMARY - RATHCORMAC WWTP

2.1.4.1 Treatment Efficiency Report - Rathcormac WWTP

Treatment efficiency is based on the removal of key pollutants from the influent wastewater by the treatment plant. In essence the calculation is based on the balance of load coming into the plant versus the load leaving the plant. The efficiency is presented as a percentage removal rate.

A summary presentation of the efficiency of the treatment process including information for all the parameters specified in the licence is included below:

Parameter	Influent mass loading (kg/year)	Effluent mass emission (kg/year)	Efficiency (% reduction of influent load)
COD	42009	5466	87
SS	12606	1074	91

Parameter	Influent mass loading (kg/year)	Effluent mass emission (kg/year)	Efficiency (% reduction of influent load)
cBOD	16693	1123	93
TN	N/A	N/A	N/A
TP	N/A	N/A	N/A

Note: The above data is based on sample results for the number of dates reported

2.1.4.2 Treatment Capacity Report Summary - Rathcormac WWTP

Treatment capacity is an assessment of the hydraulic (flow) and organic (the amount of pollutants) load a treatment plant is designed to treat versus the current loading of that plant.

Rathcormac WWTP	
Peak Hydraulic Capacity (m^3/day) - As Constructed	2700
DWF to the Treatment Plant (m^3/day)	900
Current Hydraulic Loading - annual max (m^3/day)	3856
Average Hydraulic loading to the Treatment Plant (m^3/day)	318
Organic Capacity (PE) - As Constructed	4000
Organic Capacity (PE) - Collected Load (peak week)[Note1]	2077
Organic Capacity (PE) - Remaining	1923
Will the capacity be exceeded in the next three years? (Yes/No)	No

Nominal design capacities can be based on conservative design principles. In some cases assessment of existing plants has shown organic capacities significantly higher than the nominal design capacity. Accordingly plants that appear to be overloaded when comparing a collected peak load with the nominal design capacity can be fully compliant due to the safety factors in the original design.

2.1.5 SLUDGE / OTHER INPUTS - RATHCORMAC WWTP

'Other inputs' to the waste water treatment plant are summarised in table below

Input type	Quantity	Unit	P.E.	% of load to WWTP	Included in Influent Monitoring (Y/N)?	Is there a leachate/sludge acceptance procedure for the WWTP?	Is there a dedicated leachate/sludge acceptance facility for the WWTP? (Y/N)
There is no Sludge and Other Input data for the Treatment Plant included in the AER.							

3 COMPLAINTS AND INCIDENTS

3.1 COMPLAINTS SUMMARY

A summary of complaints of an environmental nature is included below.

Number of Complaints	Nature of Complaint	Number Open Complaints	Number Closed Complaints
There were no relevant environmental complaints in 2019.			

3.2 REPORTED INCIDENTS SUMMARY

Environmental incidents that arise in an agglomeration are reported on an on-going basis in accordance with our waste water discharge licences. Where an incident occurs and it is reportable under the licence, it is reported to the Environmental Protection Agency through their Environmental Data Exchange Network, or in some instances by telephone. Some incidents which arise in the agglomeration are recorded by Irish Water but may not be reportable under our licence for example where the incident does not have an impact on environmental performance.

A summary of reported incidents is included below.

3.2.1 SUMMARY OF INCIDENTS

Incident Type	Cause	No. of incident occurrences	Recurring (Y/N)	Closed (Y/N)
Uncontrolled release	Plant or equipment breakdown at WWTP	1	No	Yes
Abatement Equipment offline	Plant or equipment breakdown at WWTP	1	No	Yes
Breach of ELV	Plant or equipment calibration at WWTP	1	Yes	No

Non-compliance	Plant or equipment calibration at WWTP	3	Yes	No

3.2.2 SUMMARY OF OVERALL INCIDENTS

Question	Answer
Number of Incidents in 2019	6
Number of Incidents reported to the EPA via EDEN in 2019	6
Explanation of any discrepancies between the two numbers above	N/A

4 INFRASTRUCTURAL ASSESSMENTS AND PROGRAMME OF IMPROVEMENTS

4.1 STORM WATER OVERFLOW IDENTIFICATION AND INSPECTION REPORT

A summary of the operation of the storm water overflows and their significance where known is included below:

4.1.1 SWO IDENTIFICATION

WWDL Name / Code for Storm Water Overflow	Irish Grid Ref.	Included in Schedule A4 of the WWDL	Significance of the overflow(High / Medium / Low)	Assessed against DoEHLG Criteria	No. of times activated in 2019 (No. of events)	Total volume discharged in 2019 (m3)	Monitoring Status
SW2	180938, 91613	Yes	Low	Meeting	Unknown	Unknown	Not Monitored
TBC	180980, 90731	No	Low	Meeting	Unknown	Unknown	Not Monitored

SWO Summary	
How much sewage was discharged via SWOs in the agglomeration in the year (m3)?	Unknown
Is each SWO identified as not meeting DoEHLG Guidance included in the Programme of Improvements?	N/A
The SWO Assessment included the requirements of relevant of WWDL schedules?	Yes
Have the EPA been advised of any additional SWOs / changes to Schedule C3 and A4 under Condition 1.7?	N/A

4.2 REPORT ON PROGRESS MADE AND PROPOSALS BEING DEVELOPED TO MEET THE IMPROVEMENT PROGRAMME REQUIREMENTS.

4.2.1 SPECIFIED IMPROVEMENT PROGRAMME SUMMARY

A wastewater discharge licence may require a number of reports on specific subject areas to be prepared for the agglomeration in question. These reports are submitted to the EPA as part of the Annual Environmental Report. This section provides list of the various reports required for this agglomeration and a brief summary of their recommendations.

Specified Improvement Programmes (under Schedule A and C of WWDL)	Description	Licence Schedule	Licence Completion Date	Date Expired? (N/NA/Y)	Status of Works	Timeframe for Completing the Work	Comments
There are no Specified Improvement Programmes for this Agglomeration.							

A summary of the status of any improvements identified by under Condition 5.2 is included below.

4.2.2 IMPROVEMENT PROGRAMME SUMMARY

Improvement Identifier	Improvement Description / or any Operational Improvements	Improvement Source	Expected Completion Date	Comments
D0200-IP:15	- Removal of existing FBDA system, air feed pipes, supports and supernatant decanting system in SBR Tank No.2. - Constructing a dividing wall across SBR No. 2 to section off a seperate area in the tank to provide 150m3 nominal storage capacity. - Mechanical fit out of buffer tank. - Provision of a galvanised mild steel platform c/w access stairway fitted with hand railing and open grid flooring supported off the tank side wall. - 2 No. Duty and Standby Buffer Tank emptying Pumps. - 2 No. Sluice Valves and 2 No. Check Valves on the Pump delivery line. - 1 No.150mm Magmeter and 2 No. 150mm Actuated Kinife Gate Valves for regulating the flow to SBR Tanks. - Instrumentation including Ultrasonic Level Sensor, SBR Common Feed Flow Transmitter and SBR DO Caps. - New Form 1 Panel. Electrical Install, Automation and Commissioning Works.	Improved Operational Control	31/03/2020	Commissioning expected for end of Quarter 1, 2020.

4.2.3 SEWER INTEGRITY RISK ASSESSMENT

The utilisation of multiple capital maintenance programmes and the outputs of the workshops with the Local Authority Operations Staff held under the programme can be used to satisfy the requirements of Condition 5 regarding network integrity. Improvement works identified by way of these programmes and workshops will be included in the Improvements Summary Table.

5 LICENCE SPECIFIC REPORTS

A wastewater discharge licence may require a number of reports on specific subject areas to be prepared for the agglomeration in question. These reports are submitted to the EPA as part of the Annual Environmental Report. This section provides list of the various reports required for this agglomeration and a brief summary of their recommendations.

5.a Licence Specific Reports Summary Table

Licence Specific Report	Required by licence	Year included in AER	Included in this AER	Reference to relevant section of AER
Priority Substances Assessment	Yes	2014	No	

5.1 PRIORITY SUBSTANCES ASSESSMENT

The Priority Substances Assessment Report has been included in the AER 2014

6 CERTIFICATION AND SIGN OFF

6.1 SUMMARY OF AER CONTENTS

Parameter	Answer
Does the AER include an Executive Summary?	Yes
Does the AER include an assessment of the performance of the Waste Water Works (i.e. have the results of assessments been interpreted against WWDL requirements and or Environmental Quality Standards)?	Yes
Is there a need to advise the EPA for consideration of a Technical Amendment / Review of the licence?	No
List reason e.g. additional SWO identified	N/A
Is there a need to request/advise the EPA of any modification to the existing WWDL with respect to condition 4 changes to monitoring location, frequency etc	No
List reason e.g. changes to monitoring requirements	N/A
Have these processes commenced?	N/A
Are all outstanding reports and assessments from previous AERs included as an appendix to this AER	Yes

I certify that the information given in this Annual Environmental Report is truthful, accurate and complete:

Signed: Date: 27/03/2020

This AER has been produced by Irish Water's Environmental Information System (EIMS) and has been electronically signed off in that system for and on behalf of ,

Katherine Walshe

Acting Head of Environmental Regulation.

7 APPENDIX

There are no Appendices included