Annual Environmental Report

2018

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ÉIREANN : IRISH
WATER

Rathcormac

D0200-01

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1 EXECUTIVE SUMMARY AND INTRODUCTION TO THE 2018 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 are included as an appendix to the AER as follows:

1.1 Licence specific reporting included in AER

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

1.2 Treatment Type

The agglomeration is served by a wastewater treatment plant Rathcormac WWTP with a Plant Capacity PE of 4000. The treatment process includes the following:

1.2.1 Rathcormac WWTP

Treatment type	Yes / No	Details
Preliminary Treatment	Yes	Screening
Primary Treatment	No	
Secondary Treatment	Yes	3 No. Sequential Batch Reactors and Storm Overflow at Inlet Works to Storm Tank with Storm Return Pumps
Nutrient Removal	Yes	Chemical Dosing for Phosphorous Removal
Tertiary Treatment	No	

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 2.2 Discharges from the agglomeration.

1.3 ELV Overview

1.3.1 Rathcormac WWTP

Compliance Status	
Were all parameters compliant for Rathcormac WWTP treatment plant	No
Where noncompliant see table 2.2.1 for details of parameters	

1.4 Sludge Removal

The amount of sludge removed from the wastewater treatment plant is shown below along with the transported destination of the sludge from the treatment plant.

Treatment Plant	Sludge type	Quantity	Unit	% Dry Solids	Destination
Rathcormac WWTP	Liquid Sludge	1054.83	Volume (m3)	3	Ormonde Organics, ERAS ECO, Youghal, Co. Cork
Rathcormac WWTP	Liquid Sludge	1916.88	Volume (m3)	3	ENVA
Rathcormac WWTP	Liquid Sludge	0	Volume (m3)	3	ENVA

Annual Statement of Measures

None

2 MONITORING REPORTS SUMMARY

2.1 Summary report on monthly influent monitoring

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

2.1.1 Influent Monitoring Summary - Rathcormac WWTP

Parameters	Number of Samples	Annual Max	Annual Mean
Suspended Solids mg/l	12	674	155.42
COD-Cr mg/l	12	1349	390.24
BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l	12	592	174.36
Hydraulic Capacity	0	3794	414

If other inputs in the form of sludge / leachate are added to the WWTP then these are included in Section 3.5 if applicable

Significance of Results:

The annual mean hydraulic loading is less than the peak Treatment Plant Capacity as detailed further in Section 3.2. The annual maximum hydraulic loading is greater than the peak Treatment Plant Capacity as detailed further in Section 3.2. The design of the wastewater tretament plant allows for peak values and therefore the peak loads have not impacted on compliance with Emission Limit Values.

2.2 Discharges from the agglomeration

2.2.1 Effluent Monitoring Summary - Rathcormac WWTP

Parameter	WWDL ELV (Schedule A)	ELV with Condition 2 Interpretation included Note 1	Interim % reduction from influent concentration	Number of sample results	Number of exceedences	Number of with Condition 2 Interpretation included	Annual Mean	Overall Compliance (Pass/Fail)
BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l	25	50	0	12	1	0	15.41	Pass
ortho-Phosphate (as P) - unspecified mg/l	2	2.4	0	12	0	0	0.71	Pass
COD-Cr mg/l	125	250	0	12	0	0	55.29	Pass
Suspended Solids mg/l	25	62.5	0	12	0	0	14.59	Pass
pH pH units	0	0	0	12	0	0	7.72	Pass
Ammonia-Total (as N) mg/l	5	6	0	12	12	12	33.58	Fail

Notes:
1– This represents the Emission Limit Values after the Interpretation provided for under Condition 2 of the licence is applied
2 - For parameters where a mean ELV applies

Cause of Exceedance(s):

Consistent Ammonia - Total (as N) ELV exceedances have been recorded at the site throughout 2018. The WWTP is under-loaded relative to design capacity with low F:M ratio and there is difficulty in maintaining a suitable MLSS within the process to achieve nitrification on site for ammonia reduction. A decision was made in conjunction with Irish Water Process Optimisation in late 2017 to run the WWTP SBR's with a MLSS of less than or equal to 2000 mg/l where possible and while maintaining the site in compliance with ELV's for BOD, COD and Suspended Solids this process adjustment does not permit sufficient sludge age to develop for Ammonia removal.

Significance of Results:

The WWTP is not compliant with the ELV’s set in the Wastewater Discharge Licence.

2.3 Ambient monitoring summary

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.

2.3.1 Ambient Monitoring Report Summary - Rathcormac WWTP

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	Code	Bathing Water	Drinking Water	FWPM	Shellfish	WFD Status
Upstream	180832, 90620	TPEFF0500D0200SW001	No	No	Yes	No	Good
Downstream	181295, 90676	TPEFF0500D0200SW001	No	No	Yes	No	Good

2.3.2 Ambient Monitoring Parameter Summary - Rathcormac WWTP

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	3	RS18B050320	1.23	2.6	-68.3
Ammonia-Total (as N) mg/l	RS18B050300	0.1	RS18B050320	0.16	0.14	41.2
Suspended Solids mg/l	RS18B050300	68	RS18B050320	83.63		
Dissolved Oxygen % Saturation	RS18B050300	98	RS18B050320	97.28		

Parameter Name	Upstream Monitoring Point Location	Upstream Monitoring Point Annual Mean	Downstream Monitoring Point Location	Downstream Monitoring Point Annual Mean	EQS	% of EQS
ortho-Phosphate (as P) - unspecified mg/l	RS18B050300	0.05	RS18B050320	0.08	0.08	40.7
Temperature °C	RS18B050300	11.43	RS18B050320	10.75		
pH pH units	RS18B050300	7.65	RS18B050320	7.63		

Significance of Results:

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

The parameters which exceeded the EQS and may be causing an are: Ortho-Phosphate (as P) and ammonia.

Any other know impacts: None known

3 OPERATIONAL REPORTS SUMMARY

3.1 Treatment Efficiency Report

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:

3.1.1 Treatment Efficiency Report Summary - Rathcormac WWTP

Parameter	Influent mass loading (kg/year)	Effluent mass emission (kg/year)	Efficiency (% reduction of influent load)	Comment
TN				
TP				
SS	63833.15	4406.16	93.1	
cBOD	71611.84	4653.81	93.5	
COD	160276.55	16700.61	89.58	

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

3.2 Treatment Capacity Report Summary

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 (m3/day) - As Constructed	2700

Rathcormac WWTP	
DWF to the Treatment Plant (m3/day)	900
Current Hydraulic Loading - annual max (m3/day)	3794
Average Hydraulic loading to the Treatment Plant (m3/day)	414
Organic Capacity (PE) - As Constructed	4000
Organic Capacity (PE) - Collected Load (peak week)	2051
Organic Capacity (PE) - Remaining	1949
Will the capacity be exceeded in the next three years? (Yes/No)	No

3.3 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
1	Blocked Sewer	0	1

3.4 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.

3.4.1 Summary of Incidents

Incident Type	Cause	No. of incident occurrences	Recurring (Y/N)	Closed (Y/N)
Spillage	Tank Overflow	1	No	Yes
Uncontrolled release	EO casued by power failure	1	No	Yes
Non-compliance	Plant or equipment calibration at WWTP	33	Yes	No

3.4.2 Summary of Overall Incidents

Question	Answer
Number of Incidents in 2018	3
Number of Incidents reported to the EPA via EDEN in 2018	3
Explanation of any discrepancies between the two numbers above	

3.5 Sludge / Other inputs to the 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)?[3]	Is there a leachate/sludge acceptance procedure for the WWTP?	Is there a dedicated leachate/sludge acceptance facility for the WWTP?[2](Y/N)
There is no Sludge and Other Input data for the Treatment Plant included in the AER.							

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:

No Appendix Included

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 2018 (No. of events)	Total volume discharged in 2018 (m3)	Monitoring Status
SW001	180910, 91635	Yes	Low	Meeting	19	3907	Not Monitored
SW002	180894, 91667	Yes	Low	Meeting			Not Monitored

4.1.2 Inspection Summary Report

SWO Summary	
How much sewage was discharged via SWOs in the agglomeration in the year (m3)?	
Is each SWO identified as non meeting DoEHLG Guidance included in the Programme of Improvements?	Yes
The SWO Assessment included the requirements of relevant of WWDL schedules?	Yes
Have the EPA been advised of any additional SWOs / charges to Schedule C3 and A4 under Condition 1.7?	No

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)	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	Improvement Source	Expected Completion Date	Comments
D0200-IP:19	Re-configuration of the WWTP to include Influent Balance Tank, Forward Feed Pumps, Anoxic Mixing and Single SBR Operation, plus re-commission Outlet Flow Measurement and Tertiary Sand Filters	Incident Reduction	12/31/2019	

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 (e.g. Appendix X).
There is no Licence Specific Report Required in this AER Annual Review.				

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	
Is there a need to request/advise the EPA of any modifications to the existing WWDL?	No
List reason e.g. changes to monitoring requirements	
Have these processes commenced?	
Are all outstanding reports and assessments from previous AERs included as an appendix to this AER	No

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

Signed: Date: 28/02/2019

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 ,

Eleanor Roche

Acting Head of Environmental Regulation.

7 APPENDIX

In the appendix include all the detailed or site specific reports that are relevant to the AER. Reports omitted from previous AERs should also be appended here.

Appendix
Appendix 7.1 - Ambient monitoring summary

Ambient -Upstream										
				Sample Code	70426	71985	73110	76307		
	EQS			Sample Date	14/03/2018	23/05/2018	05/07/2018	14/11/2018		
	Mean	95%ile	Frequency	Actual						
D.O % O_2	80%<95%ile<120%		4	4	98	101.8	93.8	98.4		
Temperature C^o	≤ 1.5 C^o increase		4	4	8	11.4	15.3	11		
pH	6 < pH < 9		4	4	7.5	7.8	7.9	7.4		
BOD mg/L	≤ 1.5	≤ 2.6	4	4	7.6	1.4	1	2		
Orthophosphate (P) mg/l	≤ 0.035	≤ 0.075	4	4	0.0918	0.0077	0.0236	0.0584		
Ammonia (N) mg/l	≤ 0.065	≤ 0.140	4	4	0.327	0.02	0.0111	0.0387		
Suspended Soilds	n/a		4	4	228	4	3	37		

Ambient -Downstream										
				Sample Code	70427	71148	71274	71984	73109	76308
	EQS			Sample Date	14/03/2018	17/04/2018	25/04/2018	23/05/2018	05/07/2018	14/11/2018
	Mean	95%ile	Frequency	Actual						
D.O % O_2	80%<95%ile<120%		4	4	97.5	97.3	98.5	100.5	92.3	97.6
Temperature C^o	≤ 1.5 C^o increase		4	4	8.2	9.9	8.5	11.6	15.3	11
pH	6 < pH < 9		4	3	7.4		1.1	7.8	7.9	7.4
BOD mg/L	≤ 1.5	≤ 2.6	4	1				1.2	0.5	2.1
Orthophosphate (P) mg/l	≤ 0.035	≤ 0.075	4	2	0.0965			0.0077	0.132	0.0675
Ammonia (N) mg/l	≤ 0.065	≤ 0.140	4	2	0.405			0.0023	0.0212	0.199
Suspended Solids	n/a		4	2	300			1.25	1.25	32