Annual Environmental Report

2019

Conna

D0439-01

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1 EXECUTIVE SUMMARY AND INTRODUCTION TO THE 2019 AER

This Annual Environmental Report has been prepared for D0439-01, Conna, 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.

There was no major capital or operational changes undertaken.

1.2 TREATMENT SUMMARY

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

- CONNA WWTP with a Plant Capacity PE of 800, the treatment type is 2 - Secondary treatment

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
TPEFF0500D0439SW001	CONNA WWTP	Treated	Non-Compliant	Ammonia-Total (as N) mg/l BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l COD-Cr mg/l ortho-Phosphate (as P) - unspecified mg/l Suspended Solids 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 CONNA WWTP - TREATED DISCHARGE

2.1.1 INFLUENT MONITORING SUMMARY - CONNA 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	1496	481.1
BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l	12	620	218.38
Hydraulic Capacity	N/A	1847	220

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 greater 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 - TPEFF0500D0439SW001

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	11	6	2	142.58	Fail
Suspended Solids mg/l	25	62.5	N/A	11	8	4	47.27	Fail
BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l	25	50	N/A	11	6	5	30.79	Fail
pH pH units	9	9	N/A	11	N/A	N/A	7.8	Pass
Ammonia-Total (as N) mg/l	5	6	N/A	11	11	11	21.1	Fail
ortho-Phosphate (as P) - unspecified mg/l	3	3.6	N/A	11	6	5	2.6	Fail
Total Nitrogen mg/l	N/A	N/A	N/A	11	N/A	N/A	30.4	
Total Phosphorus (as P) mg/l	N/A	N/A	N/A	11	N/A	N/A	3.42	

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):

BOD ELV breaches on 17/01/2019 and 20/02/2019 plus COD and Suspended Solids ELV breaches for 17/01/2019, 20/02/2019 and 07/03/2019 are attributable to the mechanical failure of RBC Unit No.1 on site in late 2018. Repairs were subsequently completed and the WWTP returned to full operational capacity on 05/03/2019. Reoccurring BOD, COD and Suspended Solids ELV breaches throughout the remainder of 2019 are attributable to WWTP design. The WWTP is designed to cater for 1 x DWF only and does not have sufficient capacity to treat peak hydraulic daily loads. Historical data indicates that the WWTP will have difficulty in consistently meeting the specified ELV's for BOD, COD and Suspended Solids. Furthermore the WWTP Design Effluent Standard for Suspended Solids is 35 mg/l which exceeds the WWDL ELV. There is no Tertiary Treatment on site and the reoccurring Ammonia and OrthoPhosphate ELV breaches are a result of the WWTP Design. The WWTP is not designed to achieve Ammonia and OrthoPhosphate removal to the standards prescribed in the WWDL.

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 TPEFF0500D0439SW001

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	192484, 93434	RS18B050600	No	No	Yes	No	Good
Downstream	193065, 93633	RS18B050620	No	No	Yes	No	Unassigned

The results for ambient results and / or additional monitoring data sets are included in the **Appendix 7.1 - Ambient monitoring summary**

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.

Based on ambient monitoring results a deterioration in Ammonia, concentrations downstream of the effluent discharge is noted.

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: Note there are three no. additional small tributaries to the River Bride between the U/S Monitoring Location RS18B050600 and the D/S Monitoring Location RS18B050700, two of which have an 'Unassigned' WFD Status and one which has a 'Moderate' WFD Status. There may be an impact on the River Bride from these additional tributaries.

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 - CONNA WWTP

2.1.4.1 Treatment Efficiency Report - CONNA 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)
cBOD	16520	2349	86
COD	36393	10877	70
TP	N/A	261	N/A
SS	N/A	3653	N/A
TN	N/A	2319	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 - CONNA 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.

CONNA WWTP	
Peak Hydraulic Capacity (m^3/day) - As Constructed	160
DWF to the Treatment Plant (m^3/day)	160
Current Hydraulic Loading - annual max (m^3/day)	1847
Average Hydraulic loading to the Treatment Plant (m^3/day)	220
Organic Capacity (PE) - As Constructed	800
Organic Capacity (PE) - Collected Load (peak week)[Note1]	554
Organic Capacity (PE) - Remaining	246
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 - CONNA 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)
Breach of ELV	WWTP upgrade required to meet ELV	1	Yes	No

3.2.2 SUMMARY OF OVERALL INCIDENTS

Question	Answer
Number of Incidents in 2019	1
Number of Incidents reported to the EPA via EDEN in 2019	1
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	192676, 93491	Yes	Low	Not Meeting	Unknown	Unknown	Monitored

SWO Summary	
How much sewage was discharged via SWOs in the agglomeration in the year (m3)?	5411
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
There are no Improvements Programme for this Agglomeration.				

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	Yes
List reason e.g. changes to monitoring requirements	Change of D/S Monitoring Location to RS18B050700
Have these processes commenced?	No
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: 30/03/2020

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

Appendix
Appendix 7.1 - Ambient monitoring summary

Id numeric	Station name	Station Code	Sampled date	Sample method	Component name	Result text	Units
83894	Conna D/S	RS18B050700	24/10/2019 11:35	Grab	BOD Reported	1.6	mg/l
83894	Conna D/S	RS18B050700	24/10/2019 11:35	Grab	Dissolved Oxygen (%Saturation)	97.60	%Saturatio
83894	Conna D/S	RS18B050700	24/10/2019 11:35	Grab	Temperature	10.7	deg_C
83894	Conna D/S	RS18B050700	24/10/2019 11:35	Grab	pH Reported	7.7	pH_unit
83894	Conna D/S	RS18B050700	24/10/2019 11:35	Grab	Ammonia	0.022	mg/l
83894	Conna D/S	RS18B050700	24/10/2019 11:35	Grab	Orthophosphate	0.026	mg/l
82531	Conna D/S	RS18B050700	28/08/2019 10:00	Grab	BOD Reported	1.0	mg/l
82531	Conna D/S	RS18B050700	28/08/2019 10:00	Grab	Dissolved Oxygen (%Saturation)	97.70	%Saturatio
82531	Conna D/S	RS18B050700	28/08/2019 10:00	Grab	Temperature	14.3	deg_C
82531	Conna D/S	RS18B050700	28/08/2019 10:00	Grab	pH Reported	8.1	pH_unit
82531	Conna D/S	RS18B050700	28/08/2019 10:00	Grab	Ammonia	0.278	mg/l
82531	Conna D/S	RS18B050700	28/08/2019 10:00	Grab	Orthophosphate	0.027	mg/l
80623	Conna D/S	RS18B050700	13/06/2019 11:00	Grab	BOD Reported	1.2	mg/l
80623	Conna D/S	RS18B050700	13/06/2019 11:00	Grab	Dissolved Oxygen (%Saturation)	96.90	%Saturatio
80623	Conna D/S	RS18B050700	13/06/2019 11:00	Grab	Temperature	11.9	deg_C
80623	Conna D/S	RS18B050700	13/06/2019 11:00	Grab	pH Reported	8.2	pH_unit
80623	Conna D/S	RS18B050700	13/06/2019 11:00	Grab	Ammonia	0.023	mg/l
80623	Conna D/S	RS18B050700	13/06/2019 11:00	Grab	Orthophosphate	0.016	mg/l
78079	Conna D/S	RS18B050700	20/02/2019 11:25	Grab	BOD Reported	1.2	mg/l
78079	Conna D/S	RS18B050700	20/02/2019 11:25	Grab	Dissolved Oxygen (%Saturation)	97.10	%Saturatio
78079	Conna D/S	RS18B050700	20/02/2019 11:25	Grab	Temperature	9.6	deg_C
78079	Conna D/S	RS18B050700	20/02/2019 11:25	Grab	pH Reported	7.8	pH_unit
78079	Conna D/S	RS18B050700	20/02/2019 11:25	Grab	Ammonia	0.062	mg/l
78079	Conna D/S	RS18B050700	20/02/2019 11:25	Grab	Orthophosphate	0.034	mg/l

			Receiving Waters Designation (Yes/No)					Mean (mg/l)	
Ambient Monitoring Point from WWDL (or as agreed with EPA)	**Irish National Grid Reference (Easting, Northing)**	**EPA Feature Coding Tool code**	**Bathing Water**	**Drinking Water**	**FWPM**	**Shellfish**	**Current WFD Status**	**cBOD**	**o-Phosphate (as P)**
Upstream Monitoring Point	192484, 93434	TPEFF0500D043 9SW001	No	No	Yes	No	Good	1.775	0.026
Downstream Monitoring Point	195634, 94143	9SW001	No	No	No	No	Unassigned	1.250	0.026
Difference								*-0.525*	*0.000*
EQS								1.500	0.035
% of EQS								-35.000%	0.000%

Ammonia (as N)
0.022
0.096
0.074
0.065
113.846%