Annual Environmental Report

2019

Clonakilty

D0051-01

CONTENTS

7.1 AMBIENT MONITORING SUMMARY

1 EXECUTIVE SUMMARY AND INTRODUCTION TO THE 2019 AER

This Annual Environmental Report has been prepared for D0051-01, Clonakilty, 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.

Installation of new pumps and macerators at Car park PS Inchydoney Q3 2019 also at this location New Pumping Control System and Rising main improvements planned for 2020. New pumps to increase capacity installed at Clarkes St PS 2019. Improved control system for pumps at Long Quay PS implemented 2019.

1.2 TREATMENT SUMMARY

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

- Clonakilty WWTP with a Plant Capacity PE of 20500, the treatment type is 3NP - Tertiary N&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
TPEFF0500D0051SW001	Clonakilty WWTP	Treated	Non-Compliant	Total Phosphorus (as P) 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 CLONAKILTY WWTP - TREATED DISCHARGE

2.1.1 INFLUENT MONITORING SUMMARY - CLONAKILTY 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
Total Nitrogen mg/l	12	190	33.51
BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l	12	703	133.26
Suspended Solids mg/l	1	149	149
COD-Cr mg/l	12	3135	433.9
Total Phosphorus (as P) mg/l	12	14.23	3.47
Hydraulic Capacity	N/A	12959	4298

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 - TPEFF0500D0051SW001

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	34.26	Pass
Suspended Solids mg/l	35	87.5	N/A	12	N/A	N/A	12.79	Pass
BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l	25	50	N/A	12	N/A	N/A	5.89	Pass
Total Nitrogen mg/l	15	18	N/A	12	N/A	N/A	6.04	Pass
pH pH units	9	9	N/A	12	N/A	N/A	7.68	Pass
Total Phosphorus (as P) mg/l	2	2.4	N/A	12	3	2	0.74	Fail
Total Oxidised Nitrogen (as N) mg/l	N/A	N/A	N/A	12	N/A	N/A	2.34	
ortho-Phosphate (as P) - unspecified mg/l	N/A	N/A	N/A	12	N/A	N/A	0.62	
Ammonia-Total (as N) mg/l	N/A	N/A	N/A	12	N/A	N/A	1.85	

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):

Three incidents of failure of Total Phosphorus P, One was caused by a shock load to the WWTP, one failure was caused by an operational failure and one by a mechanical failure.

Significance of Results:

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

2.1.3 AMBIENT MONITORING SUMMARY FOR THE TREATMENT PLANT DISCHARGE TPEFF0500D0051SW001

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
Downstream	139633, 40597	TW05003173CY1002	Yes	No	No	No	Poor

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.

The discharge from the wastewater treatment plant does not have an observable impact on the water quality.

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 - CLONAKILTY WWTP

2.1.4.1 Treatment Efficiency Report - Clonakilty 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	205588	9031	96
SS	197961	19598	90
TN	51694	9254	82
COD	669411	52502	92
TP	5349	1140	79

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

2.1.4.2 Treatment Capacity Report Summary - Clonakilty 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.

Clonakilty WWTP	
Peak Hydraulic Capacity (m^3/day) - As Constructed	3789

Clonakilty WWTP	
DWF to the Treatment Plant (m³/day)	1266
Current Hydraulic Loading - annual max (m³/day)	12959
Average Hydraulic loading to the Treatment Plant (m³/day)	4298
Organic Capacity (PE) - As Constructed	20500
Organic Capacity (PE) - Collected Load (peak week)[Note1]	11369
Organic Capacity (PE) - Remaining	9131
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 - CLONAKILTY 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	Inadequate Operational Procedures / Training	1	No	No
Uncontrolled release	EO caused by pump failure	1	No	Yes
Breach of ELV	Shock load to the WWTP	1	No	No

3.2.2 SUMMARY OF OVERALL INCIDENTS

Question	Answer
Number of Incidents in 2019	3
Number of Incidents reported to the EPA via EDEN in 2019	3
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
SW007	138667, 41336	Yes	Low	Meeting	Unknown	Unknown	Monitored
TBC	139612, 38533	No	Low	Meeting	Unknown	Unknown	Not Monitored
SW008	138859, 41382	Yes	Low	Meeting	Unknown	Unknown	Not Monitored
TBC	140690, 42600	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?	Yes

SWO Summary	
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?	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)	Description	Licence Schedule	Licence Completion Date	Date Expired? (N/NA/Y)	Status of Works	Timeframe for Completing the Work	Comments
D0051-SIP:02	Increase of design load of WWTP from 5,333 p.e. to 20,500 p.e., with the incorporation of nitrogen and phosphorous removal	C	31/12/2015	Yes	Works Completed		
D0051-SIP:03	Upgrade of Long Quay pumping station and construction of storm water holding tank.	C	31/12/2015	Yes	Works Completed		

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
D0051-SIP:01	Construction of pumping station at Ring Village and 2.5 km rising main to WWTP.	C	31/12/2015	Yes	Not Started		The improvement programme will be reviewed by Irish Water to assess the works required to comply with the licence condition on a prioritised basis
D0051-SIP:04	Upgrade of mechanical plant, inlet works, sludge treatment and storage	C	31/12/2015	Yes	Works Completed		

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	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: 08/04/2020

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

EQS	
Dissolved Oxygen %Saturation	80%<95%ile<120% (@>34.5PSU) 70%<95%ile<130% (@ 0 to
Temperature ^{o}C	≤ 1.5 C^{o} increase
pH	n/a
BOD	≤4 (95 %ile)
COD	n/a
Total Suspended Solids	n/a
Orthophosphate (P)	≤ 0.06mg/l as P (@ 0-17PSU) ≤ 0.04mg/l as P (@ 35PSU)
Ammonia (N)	n/a
Total Nitrogen (N)	n/a
Total Oxidised Nitrogen (N)	2.6mg/l - 0.25mg/l (@ 0-35PSU)
Dissolved Inorganic Nitrogen (N)	2.6mg/l - 0.25mg/l (@ 0-35PSU)
Escherichia Coli	n/a
Intestinal enterococci	n/a
Faecal Coliforms	n/a

(PSU: Practical Salinity Unit)

Station name	Clonakilty Ambient						
Eden Code	TW05003173CY1002						
Sample method	Grab						
	Component name	Result text					
Sampled date		14/02/2019 11:10	06/03/2019 08:30	03/04/2019 08:40	01/05/2019 08:15	20/06/2019 13:30	10/07/2019 08:15
Id numeric		77936	78378	78983	79569	80882	81273
	pH	8.2	7.9	8.0	8.0	8.3	7.9
	BOD	1.5	1.1	1.0	1.2	2.4	1.3
	Ammonia	0.410	0.110	0.090	<0.035	<0.035	38.5
	Orthophosphate	0.03	0.04	0.01	0.02	0.02	0.05
	Total Oxidised Nitrogen	2.70	0.90	0.28	0.42	0.06	0.10
	Dissolved Oxygen (%Saturation)	99.80	95.00	100.60	98.50	146.70	92.10
	Temperature	10.2	8.9	7.5	10.8	15.9	17.6

Clonakilty	Transitional												Median	Mean	95%ile
	EQS														
	Mean	95%ile	14/02/2019	06/03/2019	03/04/2019	01/05/2019	20/06/2019	10/07/2019	######	18/09/2019	09/10/2019	13/11/2019			
D.O % O_2	80%<95%ile<120%		99.8	95	100.6	98.5	146.7	92.1	97.1	97.8	93.2	97.6			125.955
Temperature C°	≤ 1.5 C° increase		10.2	8.9	7.5	10.8	15.9	17.6	15.1	14.3	11.6	5.8			
pH	6 < pH < 9		8.2	7.9	8	8	8.3	7.9	8	8.1	7.9	7.9			
BOD mg/L	n/a	≤ 4	1.5	1.1	1	1.2	2.4	1.3	0.5	0.5	1.2	0.5			1.995
Orthophosphate (P) mg/l	≤0.04 @35 PSU (Median)		0.03	0.04	0.01	0.02	0.02	0.05	0.02	0.02	0.04	0.02	0.02		
Ammonia (N) mg/l	≤ 0.065	≤ 0.140	0.41	0.11	0.09	0.0175	0.0175		0.09	0.0175	0.065	0.0175		0.0927778	0.29
TON (N) mg/l	n/a		2.7	0.9	0.28	0.42	0.06	0.1	0.01	0.02	1.5	0.57			

Ambient Monitoring Point from WWDL (or as agreeded with EPA)	Irish Grid Reference	EPA Feature Coding tool Code	Bathing Water	Drinking Water	FWPM	Shellfish	Current WFD Status
Downstream Monitoring Point	E139633 N40597	TW05003173CY1002	No	No	No	No	Poor

Significace of Results	
Did the ambient monitoring results meet the EQS Required?	No
Is there an obervable negative impact on water quality?	Unknown - "observable" TBC
List the parameters causing the impact?	Ammonia, D.O %Sat
A deterioration has been identified, but it is not known if it is caused by the TP	TRUE
Do the discharges from the WWTP have an observable negative impact on the WFD?	Possibly
Any other known impacts	Catchment Pressures/Diffuse Urban