Annual Environmental Report

2020

Carlingford

D0268-01

CONTENTS

1 EXECUTIVE SUMMARY AND INTRODUCTION TO THE 2020 AER

This Annual Environmental Report has been prepared for D0268-01, Carlingford, in Louth 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.

An upgrade of the existing aeration system in aeration tanks (No. 1-2) delivering a peak oxygen requirement of 47.4 kgO2/h (SOR) to cater for a Population Equivalent of 3,000 PE was completed. The works consisted of the installation of a new Fine Bubble Diffused Aeration System (FBDA) to replace the less efficient surface aeration system. All works on site were completed and commissioned in Q1-2020.

1.2 TREATMENT SUMMARY

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

- Carlingford WWTP - 2020 with a Plant Capacity PE of 2700, 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
TPEFF2100D0268SW001	Carlingford WWTP - 2020	Treated	Compliant	N/A

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 CARLINGFORD WWTP - 2020 - TREATED DISCHARGE

2.1.1 INFLUENT MONITORING SUMMARY - CARLINGFORD WWTP - 2020

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 Phosphorus mg/l	6	4.15	2.9
BOD, 5 days with Inhibition (Carbonaceous) mg/l	6	175	106.52
COD-Cr mg/l	6	748	418.69
Suspended Solids mg/l	6	250	212.34
Hydraulic Capacity	N/A	1339.33	880.92

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’. The design of the wastewater treatment plant allows for peak values and therefore the peak loads have not impacted on compliance with Emission Limit Values.

2.1.2 EFFLUENT MONITORING SUMMARY - TPEFF2100D0268SW001

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)
Chemical Oxygen Demand mg/l	125	250	N/A	6	N/A	N/A	32.88	Pass
Suspended Solids mg/l	35	87.5	N/A	6	N/A	N/A	7.63	Pass
BOD, 5 days with Inhibition (Carbonaceous) mg/l	25	50	N/A	6	N/A	N/A	3.47	Pass
pH pH units	6-9	6-9	N/A	6	N/A	N/A	7.39	Pass
Total Phosphorus mg/l	2	2.4	N/A	6	1	N/A	0.95	Pass
Enterococci (Intestinal) cfu/100ml	N/A	N/A	N/A	6	N/A	N/A	27385.49	
E. Coli cfu/100ml	N/A	N/A	N/A	6	N/A	N/A	35537.24	
Faecal coliforms cfu/100ml	N/A	N/A	N/A	6	N/A	N/A	52300.00	

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):

Not applicable

Significance of Results:

The WWTP is compliant with the ELV's set in the Wastewater Discharge Licence.

2.1.3 AMBIENT MONITORING SUMMARY FOR THE TREATMENT PLANT DISCHARGE TPEFF2100D0268SW001

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	318708,311582	RS06C620800	No	No	No	No	Unassigned
Downstream	320598, 312737	CW21006035CA1001	No	No	No	Yes	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 compliant with the ELV's set in the wastewater discharge licence.

The ambient monitoring results 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 WFD status is Unassigned u/s and d/s of the WWTP.

2.1.4 OPERATIONAL PERFORMANCE SUMMARY - CARLINGFORD WWTP - 2020

2.1.4.1 Treatment Efficiency Report - Carlingford WWTP - 2020

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)
TP	881	289	67
cBOD	32400	1054	97
COD	127350	10000	92
SS	64587	2320	96

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

2.1.4.2 Treatment Capacity Report Summary - Carlingford WWTP - 2020

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.

Carlingford WWTP - 2020	
Peak Hydraulic Capacity (m^3/day) - As Constructed	816
DWF to the Treatment Plant (m^3/day)	270
Current Hydraulic Loading - annual max (m^3/day)	1339.33
Average Hydraulic loading to the Treatment Plant (m^3/day)	880.92

Carlingford WWTP - 2020	
Organic Capacity (PE) - As Constructed	2700
Organic Capacity (PE) - Collected Load (peak week)[Note1]	2330
Organic Capacity (PE) - Remaining	370
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 - CARLINGFORD WWTP - 2020

'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 2020.			

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)
Abatement Equipment offline	Plant or equipment breakdown at WWTP	1	No	Yes
Abatement Equipment offline	Plant or equipment breakdown at WWTP	1	No	Yes
Spillage	Broken Sewer Pipe	1	No	Yes

3.2.2 SUMMARY OF OVERALL INCIDENTS

Question	Answer
Number of Incidents in 2020	3
Number of Incidents reported to the EPA via EDEN in 2020	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 2020 (No. of events)	Total volume discharged in 2020 (m^3)	Monitoring Status
SW002	319081, 311638	Yes	Low	Meeting	Unknown	Unknown	Not Monitored

SWO Summary	
How much sewage was discharged via SWOs in the agglomeration in the year (m^3)?	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
D0268-SIP:01	Improvements to ensure compliance with the ELVs as specified in Schedule A.	C	31/12/2017	Yes	Not Started		Capital works not funded in RC3. Capital works funding post 2024 will be contingent on the project being included in the 2025-2029 investment period.
D0268-SIP:02	Provide sufficient capacity in the wastewater works to satisfy the requirements of this licence	C	31/12/2017	Yes	Not Started		Capital works not funded in RC3. Capital works funding post 2024 will be contingent on the project being included in the 2025-2029 investment period.

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.

Licence Specific Report	Required by licence	Year included in AER	Included in this AER	Reference to relevant section of AER
Priority Substances Assessment	Yes	2016	No	N/A
Shellfish Impact Assessment	Yes	2017	No	N/A

5.1 PRIORITY SUBSTANCES ASSESSMENT

The Priority Substances Assessment Report has been included in the AER 2016.

5.2 SHELLFISH IMPACT ASSESSMENT

The Shellfish Impact Assessment Report has been included in the AER 2017.

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	N/A

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

Date: 12/03/2021

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

Carlingford Ambient Monitoring 2020 Data

Ambient Monitoring Report Summary Table

Ambient Monitoring Point from WWDL (or as agreed with EPA)	Irish Grid Reference	EPA Feature Coding Tool Code	Bathing Water	Drinking Water	FWPM	Shellfish	Current WFD Status
Upstream Monitoring Point	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Downstream Monitoring Point	320598E 312737N	CW21006025CA1001	N	N	N	Y	Unassigned

The downstream monitoring results are from the SFPA Microbiological Results (2016) and LCC and are included below.

Ambient Monitoring Summary

Monitoring Result Source	Sampling Method	Sample Date	pH pH units	BOD mg/ l	Suspended solids mg/l	Total Phosphorus as P mg/l	DO % sat	Faecal Coliforms cfu	E. coli cfu	Intestinal enterococci cfu
Downstream	Grab	25/2/2020	7.88	1.3	159	0.05	107.8	260	140	220
Downstream	Grab	15/05/2020	8.3	1.1	66	0.06	108.4	<10	<10	<10
Downstream	Grab	24/09/2020	7.95	1	111	<0.03	110.2	<10	<10	<10

Marine Institute Shellfish Regs (Organics SWD 2019)

Location	Sample Number	FATWT%	CB18	CB31	CB28	CB52	CB44	CB101	CB149	CB118	CB153	CB105
Carlingford Lough Inner Stn 1	ENV-19-1196	2.399	0.04	0.018	0.124	0.109	0.117	0.221	0.242	0.236	0.747	0.071

CB138	CB156	CB180	CB170	CB194	CB209	HCBD	HCB	HCHA	HCHG	HCHB	HEPC	HCHD	OCDAN	HCEPC	TNONC	TCDAN
0.608	nd	0.066	nd	nd	nd	0.055	0.06	<0.03	<0.03	<0.03	nd	nd	nd	nd	0.04	nd

DDEOP	CCDAN	DDEPP	TDEOP	TDEPP	DDTPP	DDTOP	BDE28	BDE47	BD100	BDE99	BD154	BD153	BD183	NAP	ACNLE	ACNE
<0.03	<0.03	0.776	0.114	0.348	0.095	nd	0.011	0.273	0.09	0.197	nd	nd	nd	NA	0.374	1.416

FLE	PA	ANT	FLU	PYR	CHR	BAA	BBF	BKF	BAP	ICDP	DBAHA	BGHIP
1.286	6.977	0.936	24.12	21.06	4.97	4.234	6.761	2.781	3.573	2.937	0.485	4.525

Marine Institute Shellfish Regs (Biota 2019)

Year	Date	Sample	Subno	Programme	Station	Latitude	Longitude	Species (latin)	Species (common)	# of individuals	Length Range (mm)	Length Mean (mm)	Length Stdev (mm)	Tissue analysed
2019	25/04/2019	1196	1	SWD	Carlingford Lough Inner Stn 1	54.04163	-6.18363	Mytilus edulis	mussel, blue	-	-	-	-	SB

Moisture (%)	Lipid (%)	aluminium (mg kg-1 WW)	arsenic (mg kg-1 WW)	cadmium (mg kg-1 WW)	chromium (mg kg-1 WW)	cobalt (mg kg-1 WW)	copper (mg kg-1 WW)	iron (mg kg-1 WW)	lead (mg kg-1 WW)	manganese (mg kg-1 WW)	mercury (mg kg-1 WW)	nickel (mg kg-1 WW)	selenium (mg kg-1 WW)	silver (mg kg-1 WW)
81.6	2.399	105	1.8	0.08	0.28	0.1	1.45	141	0.59	3.17	0.02	0.27	0.51	0.01

vanadium (mg kg-1 WW)	zinc (mg kg-1 WW)
0.32	15.2