Annual Environmental Report

2020

Drogheda

D0041-01

CONTENTS

1 EXECUTIVE SUMMARY AND INTRODUCTION TO THE 2020 AER

This Annual Environmental Report has been prepared for D0041-01, Drogheda, 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.

There were no major capital or operational changes undertaken in 2020.

1.2 TREATMENT SUMMARY

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

- DROGHEDA WWTP - 2020 with a Plant Capacity PE of 101600, 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
TPEFF2100D0041SW001	DROGHEDA WWTP - 2020	Treated	Non-Compliant	Ammonia-Total (as N) 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 DROGHEDA WWTP - 2020 - TREATED DISCHARGE

2.1.1 INFLUENT MONITORING SUMMARY - DROGHEDA 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
BOD, 5 days with Inhibition (Carbonaceous) mg/l	26	625	134.91
Total Phosphorus mg/l	26	25.7	8.13
Total Nitrogen mg/l	26	215	47.86
COD-Cr mg/l	26	5530	854
Suspended Solids mg/l	26	2747	551.78
Hydraulic Capacity	N/A	57862	23077

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 less 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 - TPEFF2100D0041SW001

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	26	N/A	N/A	31.1	Pass
Suspended Solids mg/l	25	62.5	N/A	26	5	N/A	14.7	Fail
BOD, 5 days with Inhibition (Carbonaceous) mg/l	20	40	N/A	26	N/A	N/A	2.11	Pass
pH pH units	6-9	6-9	N/A	26	N/A	N/A	7.6	Pass
Ammonia-Total (as N) mg/l	2	2.4	N/A	26	8	8	2.22	Fail
ortho-Phosphate (as P) - unspecified mg/l	1.5	1.8	N/A	26	N/A	N/A	0.1	Pass
Total Nitrogen mg/l	15	18	N/A	26	6	2	11.13	Fail
Total Phosphorus mg/l	N/A	N/A	N/A	28	N/A	N/A	0.58	

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):

Inadequate Operational Procedures/Training (Incident INCI013809)

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 TPEFF2100D0041SW001

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	311724, 275841	TW21001002BE1005	No	No	No	No	Moderate
Downstream	313053, 276227	TW21001002BE1006	Yes	No	No	No	Moderate

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 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 BOD, TON, TSS and 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 unknown.

Based on the effluent compliance results, the discharge from the wastewater treatment plant may be having observable negative impact on the Water Framework Directive status d/s of the WWTP. It should be noted however that the current WFD status is Moderate both u/s and d/s of the WWTP.

2.1.4 OPERATIONAL PERFORMANCE SUMMARY - DROGHEDA WWTP - 2020

2.1.4.1 Treatment Efficiency Report - DROGHEDA 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)
cBOD	1051763	12047	99
COD	6661570	234907	96
SS	4301641	110712	97
TN	373121	84154	77
TP	63400	5721	91

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

2.1.4.2 Treatment Capacity Report Summary - DROGHEDA 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.

DROGHEDA WWTP - 2020	
Peak Hydraulic Capacity (m^3/day) - As Constructed	84550
DWF to the Treatment Plant (m^3/day)	67288
Current Hydraulic Loading - annual max (m^3/day)	57862
Average Hydraulic loading to the Treatment Plant (m^3/day)	23077
Organic Capacity (PE) - As Constructed	101600
Organic Capacity (PE) - Collected Load (peak week)[Note1]	77479
Organic Capacity (PE) - Remaining	24121
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 - DROGHEDA 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)
Other	12394.5	Weight (Tonnes)	151	0.15	Yes	Yes	Yes

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)
	Plant or equipment breakdown at WWTP	1	No	Yes
Abatement Equipment offline	Adverse Weather	1	No	Yes
Abatement Equipment offline	EO caused by pump failure	1	No	Yes

Incident Type	Cause	No. of incident occurrences	Recurring (Y/N)	Closed (Y/N)
Abatement Equipment offline	Plant or equipment breakdown at WWTP	1	No	No
Abatement Equipment offline	Plant or equipment breakdown at WWTP	1	No	Yes
Abatement Equipment offline	Plant or equipment breakdown at WWTP	1	No	Yes
Breach of ELV	Inadequate Operational Procedures / Training	1	Yes	No
Spillage	Inadequate Infrastructure	1	No	No

3.2.2 SUMMARY OF OVERALL INCIDENTS

Question	Answer
Number of Incidents in 2020	8
Number of Incidents reported to the EPA via EDEN in 2020	8
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
SW10	308818, 274957	Yes	Medium	Not Meeting	Unknown	Unknown	Not Monitored
SW13	309671, 275280	Yes	Medium	Meeting	Unknown	Unknown	Not Monitored
SW15	309745, 275465	Yes	Medium	Meeting	Unknown	Unknown	Not Monitored
SW3	309266, 275160	Yes	Medium	Meeting	Unknown	Unknown	Not Monitored
SW4	309037, 275017	Yes	Medium	Meeting	Unknown	Unknown	Not Monitored
SW5	308774, 274990	Yes	Medium	Meeting	Unknown	Unknown	Not Monitored

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
SW6	308583, 275086	Yes	Medium	Meeting	Unknown	Unknown	Not Monitored
SW7	308151, 275361	Yes	Medium	Meeting	Unknown	Unknown	Not Monitored
SW8	307637, 275457	Yes	Medium	Meeting	Unknown	Unknown	Not Monitored
TBC	312565, 275882	No	Medium	Meeting	Unknown	Unknown	Monitored
TBC	306422, 275105	No	Medium	Meeting	Unknown	Unknown	Not Monitored
TBC	315085, 276120	No	Medium	Meeting	Unknown	0	Monitored
TBC	314640, 275509	No	Medium	Meeting	Unknown	Unknown	Unknown
TBC	313299, 275941	No	Medium	Meeting	Unknown	Unknown	Monitored
TBC	316186, 271181	No	Medium	Meeting	Unknown	Unknown	Monitored
TBC	313559, 270364	No	Medium	Meeting	Unknown	Unknown	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?	Yes
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
D0041-SIP:01	Nutrient removal to meet ELVs as specified in Schedule A	C	30/06/2014	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.

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	N/A

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	N/A

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

Date: 28/02/2021

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

Drogheda 2020 Ambient Monitoring Data

Ambient Monitoring Report Summary Table

			Receiving Waters Designation (Yes/No)				
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**	**WFD Status 2013-2108**
Upstream Monitoring Point	E310708 N275308 *E311724 N275841	TW21001002BE1005					
Downstream Monitoring Point	E312990 N276323 *E313053 N276227	TW21001002BE1006	Yes**	No	No	No	Moderate

*Amended coordinates as approved by EPA on 17/07/2015.

**The beaches at Laytown/Bettystown in County Meath and Seapoint and Clogherhead in County Louth are designated bathing waters. They are located 2km, 4km and 6km north and south from the point where the discharge meets the coastal waters of the Irish Sea, the primary discharge is located 4km up the Boyne Estuary.

2020 Ambient Monitoring Summary

Upstream

Date	BOD (mg/l)	Total Suspended Solids (mg/l)	Ortho-Phosphate P (mg/l)	Ammonia N (mg/l)	Total Oxidised Nitrogen N (mg/l)	DO (%sat)	pH
25/02/2020	1.7	85	0.056	0.07	2.16	111.3	7.81
13/05/2020	0.3	53	0.007	0.42	0.12	107.3	7.94
24/09/2020	1.5	186	0.02	0.49	0.12	118.5	7.99
23/11/2020	1	125	0.05	0.02	3.74	104.2	8.21
Mean	**1.13**	**112.25**	**0.033**	**0.250**	**1.54**	**110.33**	**7.99**
95%ile	**1.67**	**176.85**	**0.055**	**0.480**	**3.50**	**117.42**	**8.18**

Downstream

Date	BOD (mg/l)	Total Suspended Solids (mg/l)	Ortho-Phosphate P (mg/l)	Ammonia N (mg/l)	Total Oxidised Nitrogen N (mg/l)	DO (%sat)	pH
25/02/2020	1.6	103	0.054	0.07	2.27	109.8	7.88
13/05/2020	1.2	75	0.007	0.45	0.28	108.9	7.98
24/09/2020	3.1	282	0.02	0.47	0.24	119	8.02
23/11/2020	3	106	0.04	0.02	3.99	105.4	8.01
Mean	**2.225**	**141.500**	**0.030**	**0.253**	**1.695**	**110.78**	**7.97**
95%ile	**3.09**	**255.60**	**0.052**	**0.467**	**3.73**	**117.62**	**8.02**

Median Salinity of TW21001002BE1005 (2019 Data) = 19.15

Clogherhead Bathing Waters (EPA Beaches.ie)

Clogherhead was classified as achieving Excellent Water Quality based on the assessment of bacteriological results for the period 2016 to 2019. Clogherhead has achieved an Excellent Water Quality rating for the years 2015 to 2019. There is no 2020 classification.

The Escherichia coli and Intestinal enterococci results for the 2020 sample period are tabled below.

Date	Escherichia coli	Intestinal enterococci	Sample Quality Status
07/09/2020	10	3	Excellent
03/09/2020	148	18	Excellent
31/08/2020	<10	1	Excellent
26/08/2020	231	68	Excellent
24/08/2020	63	5	Excellent
18/08/2020	187	34	Excellent
17/08/2020	265	20	Good
11/08/2020	41	<1	Excellent
10/08/2020	<10	7	Excellent
06/08/2020	269	68	Good
28/07/2020	62	2	Excellent
20/07/2020	<10	<1	Excellent
13/07/2020	10	<1	Excellent
06/07/2020	389	43	Good
29/06/2020	<10	1	Excellent
23/06/2020	<10	1	Excellent
15/06/2020	<10	<1	Excellent
08/06/2020	20	<1	Excellent
02/06/2020	<10	<1	Excellent
25/05/2020	20	2	Excellent

Laytown/Bettystown Waters (EPA Beaches.ie)

Laytown/Bettystown was classified as achieving Good Water Quality in 2019 based on the assessment of bacteriological results for the period 2016 to 2019. Laytown/Bettystown achieved a Good Water Quality rating for the years 2015 to 2019. There is no 2020 classification.

The Escherichia coli and Intestinal enterococci results for the 2020 sample period are tabled below.

Date	Escherichia coli	Intestinal enterococci	Sample Quality Status
14/09/2020	74	9	Excellent
07/09/2020	20	9	Excellent
31/08/2020	75	9	Excellent
24/08/2020	63	20	Excellent
17/08/2020	359	40	Good
10/08/2020	51	11	Excellent
04/08/2020	345	24	Good
27/07/2020	75	45	Excellent
20/07/2020	10	<1	Excellent
13/07/2020	20	6	Excellent
06/07/2020	<10	<1	Excellent
29/06/2020	<10	5	Excellent
22/06/2020	41	15	Excellent
15/06/2020	20	<1	Excellent
08/06/2020	<10	<1	Excellent
02/06/2020	<10	<1	Excellent
25/05/2020	<10	1	Excellent