Annual Environmental Report

2021

Drogheda

D0041-01

CONTENTS

1 EXECUTIVE SUMMARY AND INTRODUCTION TO THE 2021 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.

The anaerobic digester was taken out of action in 2021. It is anticipated that the digester will be brought back online in 2023.

1.2 TREATMENT SUMMARY

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

- DROGHEDA WWTP 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	Treated	Non-Compliant	Ammonia-Total (as N) mg/l Total Nitrogen mg/l

1.4 LICENCE SPECIFIC REPORTING

Assessment / Report
There are no Licence Specific Reports included in this AER.

2 TREATMENT PLANT PERFORMANCE AND IMPACT SUMMARY

2.1 DROGHEDA WWTP - TREATED DISCHARGE

2.1.1 INFLUENT MONITORING SUMMARY - DROGHEDA 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
BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l	31	490	129
Total Phosphorus (as P) mg/l	27	29	7.99
Total Nitrogen mg/l	27	53	24
COD-Cr mg/l	27	2110	648.66
Suspended Solids mg/l	27	1491	418.93
Hydraulic Capacity	N/A	73540	23967

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 exceedances with Condition 2 Interpretation included	Annual Mean	Overall Compliance (Pass/Fail)
COD-Cr mg/l	125	250	N/A	27	N/A	N/A	38	Pass
Suspended Solids mg/l	25	62	N/A	41	5	N/A	9.05	Pass
BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l	20	40	N/A	31	1	N/A	3.92	Pass
Total Nitrogen mg/l	15	18	N/A	27	2	1	9.26	Fail
pH pH units	6.00	9.00	N/A	27	N/A	N/A	7.78	Pass
Ammonia-Total (as N) mg/l	2.00	2.40	N/A	27	9	7	2.57	Fail
ortho-Phosphate (as P) - unspecified mg/l	1.50	1.80	N/A	27	N/A	N/A	0.224	Pass
Total Phosphorus (as P) mg/l	N/A	N/A	N/A	27	N/A	N/A	0.424	

Notes:
1 – This represents the Emission Limit Values after the Interpretation provided for under Condition 2 of the licence is applied
2 – For pH the WWDA specifies a range of pH 6 - 9

Cause of Exceedance(s):

Inadequate Operational Procedures/Training (INC1013809)

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 for the following: Total Nitrogen mg/l, Ammonia-Total (as N) mg/l.

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 Ammonia concentrations downstream of the effluent discharge is noted.

Agriculture & the Drogheda WWTP are cited as significant pressures impacting the Boyne Estuary transitional waterbody in the 3rd Cycle Draft Boyne Catchment Report (HA 07).

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

It is not considered that the discharge from the wastewater treatment plant is having an observable negative impact on any downstream bathing water areas.

2.1.4 OPERATIONAL PERFORMANCE SUMMARY - DROGHEDA WWTP

2.1.4.1 Treatment Efficiency Report - DROGHEDA 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)
SS	3826080	81495	98
TP	72974	3791	95
TN	220954	82807	63
COD	5924216	335325	94
cBOD	1147417	34187	97

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

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	
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)	73540
Average Hydraulic loading to the Treatment Plant (m^3/day)	23967
Organic Capacity (PE) - As Constructed	101600
Organic Capacity (PE) - Collected Load (peak week)[Note1]	81186
Organic Capacity (PE) - Remaining	20414
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

'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	15396.5	Weight (Tonnes)	187	0.18	Yes	Yes	Yes

3 COMPLAINTS AND INCIDENTS

3.1 COMPLAINTS SUMMARY

A summary of complaints of an environmental nature related to the discharge(s) to water from the WWTP and network is included below.

Number of Complaints	Nature of Complaint	Number Open Complaints	Number Closed Complaints
There were no relevant environmental complaints in 2021.			

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
Breach of ELV	Inadequate Operational Procedures / Training	1	Yes	No

Incident Type	Cause	No. of incident occurrences	Recurring (Y/N)	Closed (Y/N)
Spillage	Inadequate Infrastructure	1	No	Yes
Uncontrolled release	EO caused by pump failure	1	No	Yes

3.2.2 SUMMARY OF OVERALL INCIDENTS

Question	Answer
Number of Incidents in 2021	5
Number of Incidents reported to the EPA via EDEN in 2021	5
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 (chamber) where applicable	Irish Grid Ref. (outfall)	Included in Schedule of the WWDL	Significance of the overflow(High / Medium / Low)	Assessed against DoEHLG Criteria	Total volume discharged in 2021 (m^3)	Monitoring Status
TBC	310736, 275478	No	Medium	Meeting	Unknown	Not Monitored
TBC	306421.823975941, 275104.508593161	No	Medium	Meeting	Unknown	Not Monitored
TBC	315091, 276131	No	Medium	Meeting	Unknown	Not Monitored
TBC	314640, 275509	No	Medium	Meeting	Unknown	Not Monitored
TBC	313299.319250849, 275941.272345941	No	Medium	Meeting	Unknown	Not Monitored
TBC	316186.246774656, 271180.926290804	No	Medium	Meeting	Unknown	Not Monitored

WWDL Name / Code for Storm Water Overflow (chamber) where applicable	Irish Grid Ref. (outfall)	Included in Schedule of the WWDL	Significance of the overflow(High / Medium / Low)	Assessed against DoEHLG Criteria	Total volume discharged in 2021 (m^3)	Monitoring Status
TBC	313559.137450845, 270363.692218237	No	Medium	Meeting	Unknown	Not Monitored
SW10	308817.7508845, 274956.785489649	Yes	Medium	Not Meeting	Unknown	Not Monitored
SW15	309745, 275465	Yes	Medium	Meeting	Unknown	Not Monitored
SW3	309266.478193471, 275160.415004024	Yes	Medium	Meeting	Unknown	Not Monitored
SW4	309037.013132388, 275017.192924223	Yes	Medium	Meeting	Unknown	Not Monitored
SW5	308774.174872253, 274989.841508001	Yes	Medium	Meeting	Unknown	Not Monitored
SW6	308582.641889858, 275086.17654713	Yes	Medium	Meeting	Unknown	Not Monitored
SW7	308134, 275363	Yes	Medium	Meeting	Unknown	Not Monitored
SW8	307636.976635945, 275456.896317797	Yes	Medium	Meeting	Unknown	Not Monitored

Any TBC SWO(s) were identified as part of the on-going National SWO programme and will be updated in subsequent AER(s) once the information is confirmed.

SWO Summary	
How much sewage was discharged via monitored 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?	No
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 a 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 other improvements identified by under Condition 5 assessments- is included below.

4.2.2 IMPROVEMENT PROGRAMME SUMMARY

Improvement Identifier	Improvement Description / or any Operational Improvements	Improvement Source	Expected Completion Date	Comments
No additional improvements planned at this time.				

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 Tables 4.2.1 and 4.2.2.

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 a list of the various reports required for this agglomeration and a brief summary of their recommendations.

5.1 PRIORITY SUBSTANCES ASSESSMENT

The Priority Substances Assessment Report has been included in the AER 2014.

Licence Specific Report	Required by licence	Year included in AER	Included in this AER
Priority Substances Assessment	Yes	2014	No

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
Has a Technical amendment/licence review application been submitted to the Agency by IW?	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: 20/02/2022

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 2021 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	No	No	No	No	Moderate
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.

2021 Ambient Monitoring Summary

			Ammonia N	Ortho-Phosphate P	Total Suspended Solids	Total Oxidised Nitrogen N	pH	Dissolved Oxygen % Saturation	Biological Oxygen Demand
Station	**Station Reference**	**Sample Date**	**mg/l**	**mg/l**	**mg/l**	**mg/l**	**pH units**	**% Sat.**	**mg/l**
Upstream	TW21001002BE1005	19-Mar-2021	0.03	0.03	14	3.03	8.42	133.7	1.8
Upstream	TW21001002BE1005	29-June-2021	0.42	< 0.01	159	1.13	7.99	87.8	2.5
Upstream	TW21001002BE1005	19-Oct-2021	0.25	0.16	250	3.15	7.93	84.1	< 2
Upstream	TW21001002BE1005	6-Dec-2021	0.23	0.06	122	< 0.24	7.81	71.6	2.7
		Mean	**0.2325**	**0.0643**	**136.25**	**2.44**	**8.04**	**94.30**	**2.104**
		95%ile	**0.3945**	**0.1450**	**236.35**	**3.14**	**8.36**	**126.82**	**2.670**

			Ammonia N	Ortho-Phosphate P	Total Suspended Solids	Total Oxidised Nitrogen N	pH	Dissolved Oxygen % Saturation	Biological Oxygen Demand
Station	**Station Reference**	**Sample Date**	**mg/l**	**mg/l**	**mg/l**	**mg/l**	**pH units**	**% Sat.**	**mg/l**
Downstream	TW21001002BE1006	19-Mar-2021	0.02	0.03	16	3.21	8.45	137.6	2.1
Downstream	TW21001002BE1006	29-June-2021	0.41	< 0.01	146	1.12	8.01	89.2	2.6
Downstream	TW21001002BE1006	19-Oct-2021	0.27	0.04	213	3.58	7.81	74.2	1.9
Downstream	TW21001002BE1006	6-Dec-2021	0.28	0.06	100	< 0.24	7.75	74.5	1.1
		Mean	**0.2450**	**0.0343**	**118.75**	**2.02**	**8.01**	**93.88**	**1.925**
		95%ile	**0.3905**	**0.0570**	**202.95**	**3.52**	**8.38**	**130.34**	**2.525**

Median Salinity of TW21001002BE1005 (2021 Data) = 16.15

Seapoint (Louth) Bathing Waters (EPA Beaches.ie)

The Escherichia coli and Intestinal enterococci results for the 2021 sample period are tabled below.

Date	Escherichia coli	Intestinal enterococci	Sample Quality Status
06/09/2021	31	5	Excellent
31/08/2021	10	<1	Excellent
30/08/2021	10	2	Excellent
24/08/2021	10	2	Excellent
23/08/2021	10	4	Excellent
17/08/2021	<10	<1	Excellent
16/08/2021	<10	3	Excellent
10/08/2021	20	11	Excellent
09/08/2021	118	14	Excellent
03/08/2021	20	2	Excellent
26/07/2021	<10	24	Excellent
19/07/2021	52	4	Excellent
12/07/2021	41	8	Excellent
05/07/2021	884	820	Poor
28/06/2021	<10	1	Excellent
21/06/2021	10	1	Excellent
14/06/2021	<10	1	Excellent
08/06/2021	20	15	Excellent
01/06/2021	<10	<1	Excellent
25/05/2021	31	16	Excellent

Clogherhead Bathing Waters (EPA Beaches.ie)

The Escherichia coli and Intestinal enterococci results for the 2021 sample period are tabled below.

Date	Escherichia coli	Intestinal enterococci	Sample Quality Status
06/09/2021	<10	<1	Excellent
31/08/2021	31	17	Excellent
30/08/2021	<10	10	Excellent
24/08/2021	216	3	Excellent
23/08/2021	538	34	Sufficient
17/08/2021	10	1	Excellent
16/08/2021	31	<1	Excellent
10/08/2021	<10	9	Excellent
09/08/2021	31	13	Excellent
03/08/2021	<10	1	Excellent
26/07/2021	<10	1	Excellent
19/07/2021	<10	26	Excellent
12/07/2021	<10	5	Excellent
05/07/2021	20	2	Excellent
28/06/2021	<10	<1	Excellent
21/06/2021	<10	<1	Excellent
14/06/2021	<10	<1	Excellent
08/06/2021	20	10	Excellent
01/06/2021	<10	<1	Excellent
25/05/2021	<10	<1	Excellent

Laytown/Bettystown Waters (EPA Beaches.ie)

The Escherichia coli and Intestinal enterococci results for the 2021 sample period are tabled below.

Date	Escherichia coli	Intestinal enterococci	Sample Quality Status
13/09/2021	52	18	Excellent
06/09/2021	52	1	Excellent
30/08/2021	181	20	Excellent
23/08/2021	74	9	Excellent
16/08/2021	85	7	Excellent
09/08/2021	341	56	Good
03/08/2021	31	16	Excellent
26/07/2021	110	6	Excellent
19/07/2021	52	7	Excellent
12/07/2021	74	5	Excellent
05/07/2021	<10	1	Excellent
28/06/2021	<10	3	Excellent
21/06/2021	<10	<1	Excellent
14/06/2021	<10	<1	Excellent
08/06/2021	10	9	Excellent
01/06/2021	<10	<1	Excellent
24/05/2021	62	5	Excellent