Annual Environmental Report

2019

Drogheda

D0041-01

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1 EXECUTIVE SUMMARY AND INTRODUCTION TO THE 2019 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 capital works, significant changes or operational improvements undertaken this year.

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 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 - 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
COD-Cr mg/l	26	2590	940.29
Total Nitrogen mg/l	26	155.7	57.76
BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l	26	1425	198.39
Suspended Solids mg/l	26	2351	743.64
Total Phosphorus (as P) mg/l	26	26.86	7.58
Hydraulic Capacity	N/A	50956	24684

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)
COD-Cr mg/l	125	250	N/A	26	N/A	N/A	37.17	Pass
Suspended Solids mg/l	25	62.5	N/A	26	1	N/A	10.58	Pass
BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l	20	40	N/A	26	1	N/A	6.59	Pass
Total Nitrogen mg/l	15	18	N/A	26	14	8	14.33	Fail
pH pH units	6-9	6-9	N/A	26	N/A	N/A	7.75	Pass
Ammonia-Total (as N) mg/l	2	2.4	N/A	26	10	7	1.73	Fail
Total Phosphorus (as P) mg/l	2	2.4	N/A	26	N/A	N/A	0.36	Pass
ortho-Phosphate (as P) - unspecified mg/l	1.5	1.8	N/A	26	N/A	N/A	0.07	Pass

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.

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 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.

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 BOD & Ortho-P 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.

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 - 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)
TP	65210	3013	95
COD	8093485	313744	96
cBOD	1707594	55585	97
TN	497152	120935	76
SS	6400768	89282	99

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)	50956
Average Hydraulic loading to the Treatment Plant (m^3/day)	24684
Organic Capacity (PE) - As Constructed	101600
Organic Capacity (PE) - Collected Load (peak week)[Note1]	75026
Organic Capacity (PE) - Remaining	26574
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)
Domestic /Septic Tank Sludge	26.4	Weight (Tonnes)	0	0	Yes	Yes	No
Landfill Leachate (delivered by tanker)	10949.3	Weight (Tonnes)	133	0.12	Yes	Yes	No
Waterworks Sludge	54322	Weight (Tonnes)	661	0.6	Yes	Yes	No
Other	51629.6	Weight (Tonnes)	628	0.57	Yes	Yes	No

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
21	Blocked Sewer	0	21

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)
Spillage	Blocked Sewer	1	No	Yes
Spillage	Broken Sewer Pipe	1	No	Yes
Abatement Equipment offline	Network Infrastructure	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	Yes
Trigger Level Reached	SWO exceptional rainfall and overflow expected	1	No	Yes
Spillage	Adverse Weather	1	No	No
Other	Broken Sewer Pipe	1	No	No
Uncontrolled release	EO caused by pump failure	1	No	Yes
Uncontrolled release	Network Infrastructure	1	No	Yes
Breach of ELV	Inadequate Operational Procedures / Training	1	Yes	No

3.2.2 SUMMARY OF OVERALL INCIDENTS

Question	Answer
Number of Incidents in 2019	10
Number of Incidents reported to the EPA via EDEN in 2019	10
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
SW10	308847, 274949	Yes	Low	Not yet Assessed	Unknown	Unknown	Not Monitored
SW10	308847, 274949	Yes	Low	Meeting	Unknown	Unknown	Not Monitored
SW11	309064, 275000	Yes	Low	Not yet Assessed	Unknown	Unknown	Not Monitored
SW11	309064, 275000	Yes	Low	Not yet Assessed	Unknown	Unknown	Not Monitored
SW12	309232, 275087	Yes	Low	Not yet Assessed	Unknown	Unknown	Not Monitored
SW12	309232, 275087	Yes	Low	Not yet Assessed	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 2019 (No. of events)	Total volume discharged in 2019 (m3)	Monitoring Status
SW13	309671, 275280	Yes	Low	Not yet Assessed	Unknown	Unknown	Not Monitored
SW13	309671, 275280	Yes	Low	Not yet Assessed	Unknown	Unknown	Not Monitored
SW14	312502, 275858	Yes	Low	Not yet Assessed	Unknown	Unknown	Not Monitored
SW15	309745, 275465	Yes	Low	Not yet Assessed	Unknown	Unknown	Not Monitored
SW15	309745, 275465	Yes	Low	Not yet Assessed	Unknown	Unknown	Not Monitored
SW2	310245, 275473	Yes	Low	Not yet Assessed	Unknown	Unknown	Not Monitored
SW4	309055, 275029	Yes	Low	Not yet Assessed	Unknown	Unknown	Not Monitored
SW5	308783, 274989	Yes	Low	Not yet Assessed	Unknown	Unknown	Not Monitored
SW6	308576, 275079	Yes	Low	Not yet Assessed	Unknown	Unknown	Not Monitored
SW9	308625, 274998	Yes	Low	Not yet Assessed	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 2019 (No. of events)	Total volume discharged in 2019 (m3)	Monitoring Status
SW9	308625, 274998	Yes	Low	Not yet Assessed	Unknown	Unknown	Not Monitored
TBC	310755, 275463	No	Low	Not yet Assessed	Unknown	Unknown	Not Monitored
TBC	312565, 275882	No	Low	Meeting	Unknown	Unknown	Not Monitored
TBC	TBC	No	Unknown	Meeting	Unknown	Unknown	Unknown
TBC	TBC	No	Unknown	Meeting	Unknown	Unknown	Unknown
TBC	TBC	No	Unknown	Not Meeting	Unknown	Unknown	Unknown
TBC	TBC	No	Unknown	Not Meeting	Unknown	Unknown	Unknown
SW14	312502, 275858	Yes	Low	Not yet Assessed	Unknown	Unknown	Not Monitored
SW2	310245, 275473	Yes	Low	Not yet Assessed	Unknown	Unknown	Not Monitored
SW3	309270, 275159	Yes	Low	Not yet Assessed	Unknown	Unknown	Not Monitored
SW3	309270, 275159	Yes	Low	Meeting	Unknown	Unknown	Not Monitored
SW4	309055, 275029	Yes	Low	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 2019 (No. of events)	Total volume discharged in 2019 (m3)	Monitoring Status
SW5	308783, 274989	Yes	Low	Meeting	Unknown	Unknown	Not Monitored
SW6	308576, 275079	Yes	Low	Not yet Assessed	Unknown	Unknown	Not Monitored
SW7	308151, 275361	Yes	Low	Not yet Assessed	Unknown	Unknown	Not Monitored
SW7	308151, 275361	Yes	Low	Not yet Assessed	Unknown	Unknown	Not Monitored
SW8	307648, 275246	Yes	Low	Not yet Assessed	Unknown	Unknown	Not Monitored
SW8	307648, 275246	Yes	Low	Not yet Assessed	Unknown	Unknown	Not Monitored
TBC	TBC	No	Unknown	Meeting	Unknown	Unknown	Unknown

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?	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?	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
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	

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: 06/03/2020

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

Drogheda 2019 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.

2019 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
30.06.19	10	59	0.007	0.023	2.47	98.9	8.05
26.07.19	1.2	23	0.039	0.09	1.77	97.3	8.1
20.09.19	6.6	189	0.007	0.53	1.18	143.2	8.22
18.11.19	1.1	63	0.03	0.13	3.37	127.3	7.99
Mean	4.73	83.5	0.021	0.193	2.198	116.68	8.09
95%ile	9.49	170.1	0.03765	0.47	3.235	140.815	8.202

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
30.06.19	12	56	0.007	0.24	2.19	99.3	8.05
26.07.19	3.2	36	0.067	0.28	2.99	96.5	8.32
20.09.19	5.7	116	0.007	0.45	1.11	142.1	8.21
18.11.19	1.1	47	0.029	0.15	3.33	127.3	7.98
Mean	5.5	63.75	0.0275	0.28	2.405	116.3	8.14
95%ile	11.055	107	0.0613	0.4245	3.279	139.88	8.3035

Note: Where the concentration in the result is less than the limit of detection (LOD), a value of 50% of the LOD was used in calculating the mean and 95%ile concentrations.

Clogherhead Bathing Waters (EPA Beaches.ie)

Clogherhead is 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 five consecutive years 2015 to 2019.

The 2019 Escherichia coli and Intestinal enterococci results for the 2019 sample period are tabled below.

Date	Escherichia coli	Intestinal enterococci	Sample Quality Status
09/09/2019	85	8	Excellent
02/09/2019	31	7	Excellent
27/08/2019	52	5	Excellent
26/08/2019	<10	1	Excellent
19/08/2019	<10	2	Excellent
13/08/2019	30	1	Excellent
12/08/2019	<10	1	Excellent
06/08/2019	109	47	Excellent
30/07/2019	<10	<1	Excellent
29/07/2019	<10	4	Excellent
23/07/2019	<10	9	Excellent
22/07/2019	96	18	Excellent
15/07/2019	<10	<1	Excellent
09/07/2019	<10	<1	Excellent
01/07/2019	<10	2	Excellent
25/06/2019	<10	<1	Excellent
17/06/2019	31	5	Excellent
10/06/2019	<10	<1	Excellent
05/06/2019	<10	3	Excellent
22/05/2019	20	<1	Excellent

Laytown/Bettystown Waters (EPA Beaches.ie)

Laytown/Bettystown is classified as achieving Good Water Quality in 2019 based on the assessment of bacteriological results for the period 2016 to 2019. Laytown/Bettystown has achieved a Good Water Quality rating for the five consecutive years 2015 to 2019.

The 2019 Escherichia coli and Intestinal enterococci results for the 2019 sample period are tabled below.

Date	Escherichia coli	Intestinal enterococci	Sample Quality Status
09/09/2019	10	3	Excellent
02/09/2019	31	15	Excellent
26/08/2019	10	1	Excellent
19/08/2019	10	5	Excellent
12/08/2019	213	14	Excellent
06/08/2019	52	10	Excellent
29/07/2019	20	<1	Excellent
22/07/2019	31	2	Excellent
15/07/2019	<10	<1	Excellent
08/07/2019	10	2	Excellent
01/07/2019	<10	3	Excellent
24/06/2019	<10	4	Excellent
17/06/2019	110	5	Excellent
10/06/2019	<10	<1	Excellent
04/06/2019	10	3	Excellent
27/05/2019	<10	3	Excellent