Annual Environmental Report

2018

Drogheda

D0041-01

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1 EXECUTIVE SUMMARY AND INTRODUCTION TO THE 2018 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 are included as an appendix to the AER as follows:

1.1 Licence specific reporting included in AER

Assessment / Report	Included in AER
There is no Licence Specific Reports included in the AER.	

1.2 Treatment Type

The agglomeration is served by a wastewater treatment plant DROGHEDA WWTP with a Plant Capacity PE of 101,600. The treatment process includes the following:

1.2.1 DROGHEDA WWTP

Treatment type	Yes / No	Details
Preliminary Treatment	Yes	Screen
Primary Treatment	Yes	Primary Settlement
Secondary Treatment	Yes	Aeration of activated sludge followed by clarification
Nutrient Removal	Yes	TN nutrient removal via the anoxic zone
Tertiary Treatment	No	

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 2.2 Discharges from the agglomeration.

1.3 ELV Overview

1.3.1 DROGHEDA WWTP

Compliance Status	
Were all parameters compliant for DROGHEDA WWTP treatment plant	No
Where non compliant see Table 2.2.1 for details of parameters	

1.4 Sludge Removal

The amount of sludge removed from the wastewater treatment plant is shown below along with the transported destination of the sludge from the treatment plant.

Treatment Plant	Sludge type	Quantity	Unit	% Dry Solids	Destination
DROGHEDA WWTP	Cake Sludge	2670	Weight (Tonnes)	21.7	Biocore, Ballivor, Co. Meath

Annual Statement of Measures

Chemical P removal system installed and is operational since Q2 2018.

2 MONITORING REPORTS SUMMARY

2.1 Summary report on monthly influent monitoring

A summary of influent monitoring for the treatment plant is presented in below. This monitoring is primarily undertaken in order to determine the overall efficiency of the plant in removing pollutants from the raw wastewater.

2.1.1 Influent Monitoring Summary - DROGHEDA WWTP

Parameters	Number of Samples	Annual Max	Annual Mean
Suspended Solids mg/l	26	3130	820.75
BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l	25	1390	266.65
Total Nitrogen mg/l	25	78.76	33.9
COD-Cr mg/l	26	3810	1107.98
Total Phosphorus (as P) mg/l	26	48.7	15.89
Hydraulic Capacity		62045	23166

If other inputs in the form of sludge / leachate are added to the WWTP then these are included in Section 3.5 if applicable.

Significance of Results:

The annual mean hydraulic loading is less than the peak Treatment Plant Capacity as detailed further in Section 3.2. The annual maximum hydraulic loading is less than the peak Treatment Plant Capacity as detailed further in Section 3.2.

2.2 Discharges from the agglomeration

2.2.1 Effluent Monitoring Summary - DROGHEDA WWTP

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	0	26	0	0	42.24	Pass
Total Nitrogen mg/l	15	18	0	26	8	3	12.36	Fail
Suspended Solids mg/l	25	62.5	0	26	3	0	12.02	Pass
ortho-Phosphate (as P) - unspecified mg/l	1.5	1.8	0	26	0	0	0.22	Pass
BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l	20	40	0	26	0	0	4.34	Pass
Total Phosphorus (as P) mg/l	0	0	0	26	0	0	0.41	N/A
Ammonia-Total (as N) mg/l	2	2.4	0	26	6	6	1.22	Fail
Total Oxidised Nitrogen (as N) mg/l	0	0	0	1	0	0	17.3	N/A
pH pH units	0	0	0	25	0	0	7.88	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.

Significance of Results:

The WWTP is not compliant with the ELV's set in the Wastewater Discharge Licence. There were 8 samples non-compliant with the Total N (mg/l) ELV, 3 of which were above the Condition 2 ELV. There were 6 samples non-compliant with the Ammonia N (mg/l) ELV, all of which were above the Condition 2 ELV. The impact on receiving waters is assessed in Section 2.3.

2.3 Ambient monitoring summary

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.

2.3.1 Ambient Monitoring Report Summary - DROGHEDA WWTP

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	Code	Bathing Water	Drinking Water	FWPM	Shellfish	WFD Status
Upstream	311724, 275841	TPEFF2100D0041SW001	No	No	No	No	Moderate
Downstream	313053, 276227	TPEFF2100D0041SW001	Yes	No	No	No	Moderate

2.3.2 Ambient Monitoring Parameter Summary - DROGHEDA WWTP

The table below provides a summary of monitoring results for designated ambient monitoring points. The upstream and downstream annual mean values are shown (mg/l), and the difference between both monitoring stations is given as a percentage of the Environmental Quality Standard (EQS) where relevant.

Parameter Name	Upstream Monitoring Point Location	Upstream Monitoring Point Annual Mean	Downstream Monitoring Point Location	Downstream Monitoring Point Annual Mean	EQS	% of EQS
Total Oxidised Nitrogen (as N) mg/l	TW21001002BE1005	0.97	TW21001002BE1006	0.79		
Dissolved Oxygen mg/l	TW21001002BE1005	9.25	TW21001002BE1006	9.55		
pH pH units	TW21001002BE1005	8.04	TW21001002BE1006	7.95		
Ammonia-Total (as N) mg/l	TW21001002BE1005	0.22	TW21001002BE1006	0.25	0.14	25
Temperature °C	TW21001002BE1005	10.33	TW21001002BE1006	10.28		
BOD - 5 days (Total) mg/l	TW21001002BE1005	0.8	TW21001002BE1006	1	2.6	7.7
Suspended Solids mg/l	TW21001002BE1005	56	TW21001002BE1006	93.25		
Dissolved Oxygen % Saturation	TW21001002BE1005	110.05	TW21001002BE1006	109.1		
ortho-Phosphate (as P) - unspecified mg/l	TW21001002BE1005	0.02	TW21001002BE1006	0.02	0.075	-0.7

Significance of Results:

The WWTP discharge was not compliant with the ELV's set in the wastewater discharge licence.

Based on the effluent results from 2018, it is considered that the discharge from the wastewater treatment plant does not have an observable negative impact on the water quality.

The discharge from the WWTP does not have an observable negative impact on the Water Framework Directive status

In terms of bathing water designations, it is not considered that the effluent discharge from the WWTP is impacting upon the water quality of the bathing waters.

3 OPERATIONAL REPORTS SUMMARY

3.1 Treatment Efficiency Report

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:

3.1.1 Treatment Efficiency Report Summary - DROGHEDA WWTP

Parameter	Influent mass loading (kg/year)	Effluent mass emission (kg/year)	Efficiency (% reduction of influent load)
TN	332638.79	118593.69	64.35
COD	10779485.98	405372.92	96.24
TP	154629.88	3893.44	97.48
cBOD	2635297.17	41618.94	98.42
SS	7984994.32	115377.31	98.56

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

3.2 Treatment Capacity Report Summary

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)	62045
Average Hydraulic loading to the Treatment Plant (m^3/day)	23166
Organic Capacity (PE) - As Constructed	101600
Organic Capacity (PE) - Collected Load (peak week)	73561
Organic Capacity (PE) - Remaining	28039
Will the capacity be exceeded in the next three years? (Yes/No)	No

3.3 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
29	Blocked Sewer	4	25

3.4 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.

3.4.1 Summary of Incidents

Incident Type	Cause	No. of incident occurrences	Recurring (Y/N)	Closed (Y/N)
Non-compliance	Inadequate Operational Procedures	1	Yes	No
Uncontrolled release	EO caused by pump failure	1	No	Yes

3.4.2 Summary of Overall Incidents

Question	Answer
Number of Incidents in 2018	2
Number of Incidents reported to the EPA via EDEN in 2018	2
Explanation of any discrepancies between the two numbers above	N/A

3.5 Sludge / Other inputs to the 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)?[3]	Is there a leachate/sludge acceptance procedure for the WWTP?	Is there a dedicated leachate/sludge acceptance facility for the WWTP?[2](Y/N)
Landfill Leachate (delivered by tanker)	24214	Weight (Tonnes)	294		Yes	Yes	No

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:

No Appendix Included.

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 2018 (No. of events)	Total volume discharged in 2018 (m^3)	Monitoring Status
SWO-10	308847, 274949	Yes	Low	Meeting			Not Monitored
SWO-11	309064, 275000	Yes	Low	Meeting			Not Monitored
SWO-12	309232, 275087	Yes	Low	Meeting			Not Monitored
SWO-13	309671, 275280	Yes	Low	Meeting			Not Monitored
SWO-14	310245, 275473	Yes	Low	Meeting			Not Monitored
SWO-15	309745, 275465	Yes	Low	Meeting			Not Monitored
SWO-2	309745, 275465	Yes	Low	Meeting			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 2018 (No. of events)	Total volume discharged in 2018 (m^3)	Monitoring Status
SWO-3	309270, 275159	Yes	Low	Meeting			Not Monitored
SWO-4	309055, 275029	Yes	Low	Meeting			Not Monitored
SWO-5	308783, 274989	Yes	Low	Meeting			Not Monitored
SWO-6	308576, 275079	Yes	Low	Meeting			Not Monitored
SWO-7	308151, 275361	Yes	Low	Meeting			Not Monitored
SWO-8	307648, 275426	Yes	Low	Meeting			Not Monitored
SWO-9	308625, 274998	Yes	Low	Meeting			Not Monitored

4.1.2 Inspection Summary Report

SWO Summary	
How much sewage was discharged via SWOs in the agglomeration in the year (m^3)?	Not Monitored
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

SWO Summary	
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)	Licence Schedule	Licence Completion Date	Date Expired? (N/NA/Y)	Status of Works	Timeframe for Completing the Work	Comments
Nutrient removal to meet ELVs as specified in Schedule A	C	29/06/2014	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	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	

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 modifications to the existing WWDL?	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: 19/03/2019

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,

Eleanor Roche

Acting Head of Environmental Regulation.

7 APPENDIX

Appendix
Appendix 7.1 - Ambient Monitoring Summary

Drogheda 2018 Ambient Monitoring Data

Ambient Monitoring Report Summary Table

Ambient Monitoring Point from WWDL (or as agreed with EPA)	Irish National Grid Reference (Easting, Northing)	EPA Feature Coding Tool code	Receiving Waters Designation (Yes/No)			
			Bathing Water	Drinking Water	FWPM	Shellfish
Upstream Monitoring Point	E310708 N275308 *E311724 N275841	TW21001002BE1005				
Downstream Monitoring Point	E312990 N276323 *E313053 N276227	TW21001002BE1006	Yes**	No	No	No

*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.

Significance of Results

- The WWTP was non-compliant with the ELV's set in the wastewater discharge licence as detailed in Section 2.2.
- Based on the effluent results from 2018, it is considered that the discharge from the wastewater treatment plant does not have an observable negative impact on the water quality.
- The discharge from the WWTP does not have an observable negative impact on the Water Framework Directive status.
- In terms of bathing water designations, it is not considered that the effluent discharge from the WWTP is impacting upon the water quality of the bathing waters.

2018 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 (mg/l)	DO (%sat)	pH
20-Feb-2018	10	16	0.03	< 0.06	3	9.4		8.1
22-May-2018	< 1	25	< 0.02	0.12	< 0.7	9.1		8.2
4-Oct-2018	< 2	79	0.024	0.35	0.4		109	7.95
13-Nov-2018	0.6	104	0.021	0.37	< 0.24		111.1	7.89
Mean	3.025	56	0.02125	0.2175	0.9675	9.25	110.05	8.035
95%ile	8.65	100.25	0.0291	0.367	2.61	9.385	110.99	8.185

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 (mg/l)	DO (%sat)	pH
20-Feb-2018	3	34	0.03	0.07	2.4	10		7.9
22-May-2018	4	34	< 0.02	0.22	< 0.7	0.1		8.1
4-Oct-2018	< 2	91	0.026	0.36	0.27		107.9	7.9
13-Nov-2018	1	214	0.017	0.36	< 0.24		110.3	7.88
Mean	2.25	93.25	0.02075	0.2525	0.785	9.55	109.1	7.945
95%ile	3.85	195.55	0.0294	0.36	2.0925	9.955	110.18	8.07

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 2015 to 2018. Clogherhead was also classified as achieving excellent water quality during the previous assessment periods 2014 to 2017, 2013 to 2016, 2012 to 2015 and 2011 to 2014.

The 2018 Escherichia coli and Intestinal enterococci results for the 2018 sample period are tabled below.

Date	Escherichia coli	Intestinal enterococci	Sample Quality Status
10/09/2018	97	24	Excellent
03/09/2018	10	1	Excellent
28/08/2018	<10	6	Excellent
27/08/2018	183	72	Excellent
21/08/2018	<10	1	Excellent
20/08/2018	10	5	Excellent
14/08/2018	<10	6	Excellent
13/08/2018	<10	5	Excellent
07/08/2018	<10	<1	Excellent
01/08/2018	<10	3	Excellent
30/07/2018	86	35	Excellent
23/07/2018	<10	1	Excellent
16/07/2018	<10	<1	Excellent
09/07/2018	<10	<1	Excellent
02/07/2018	<10	<1	Excellent
25/06/2018	<10	5	Excellent
18/06/2018	<10	4	Excellent
11/06/2018	<10	<1	Excellent
05/06/2018	<10	<1	Excellent
22/05/2018	<10	<1	Excellent

Laytown/Bettystown Waters (EPA Beaches.ie)

Laytown/Bettystown is classified as achieving Good Water Quality in 2018 based on the assessment of bacteriological results for the period 2015 to 2018. Laytown/Bettystown has achieved a Good Water Quality rating for five consecutive years 2014 to 2018.

The 2018 Escherichia coli and Intestinal enterococci results for the 2018 sample period are tabled below.

Date	Escherichia coli	Intestinal enterococci	Sample Quality Status
10/09/2018	663	1000	Poor
03/09/2018	<10	1	Excellent
27/08/2018	74	8	Excellent

Date	Escherichia coli	Intestinal enterococci	Sample Quality Status
20/08/2018	41	6	Excellent
13/08/2018	41	9	Excellent
07/08/2018	<10	2	Excellent
30/07/2018	19	15	Excellent
23/07/2018	52	40	Excellent
16/07/2018	20	5	Excellent
09/07/2018	<10	4	Excellent
02/07/2018	<10	<1	Excellent
25/06/2018	<10	1	Excellent
18/06/2018	<10	<1	Excellent
11/06/2018	<10	<1	Excellent
05/06/2018	30	9	Excellent
22/05/2018	<10	1	Excellent