Annual Environmental Report

2018

Waterford City

D0022-01

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1 EXECUTIVE SUMMARY AND INTRODUCTION TO THE 2018 AER

This Annual Environmental Report has been prepared for D0022-01, Waterford City, in Waterford 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

1.2 Treatment Type

The agglomeration is served by a wastewater treatment plant WATERFORD CITY WWTP with a Plant Capacity PE of 190600. The treatment process includes the following:

1.2.1 WATERFORD CITY WWTP

Treatment type	Yes / No	Details
Preliminary Treatment	Yes	Screening; Grit Removal
Primary Treatment	Yes	Primary Settlement Tanks
Secondary Treatment	Yes	Aeration Lanes; Final Settlement Tanks
Nutrient Removal	No	
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 WATERFORD CITY WWTP

Compliance Status	
Were all parameters compliant for WATERFORD CITY WWTP treatment plant	Yes
Where noncompliant 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
WATERFORD CITY WWTP	Cake Sludge	3796	Weight (Tonnes)	16.53	Cortnacuddy Co. Wexford

Annual Statement of Measures

Plans are being developed to provide additional capacity at the WWTP to allow for increased commercial loading to the WWTP, these plans will be developed further in 2019.

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 - WATERFORD CITY WWTP

Parameters	Number of Samples	Annual Max	Annual Mean
Total Phosphorus (as P) mg/l	22	8.4	4.28
COD-Cr mg/l	24	573	289.82
BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l	20	256	124.94
Total Nitrogen mg/l	24	51.9	26.73
BOD - 5 days (Total) mg/l	4	146	105.72
Suspended Solids mg/l	24	306	154.87
Hydraulic Capacity	0	81996	37752

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 - WATERFORD CITY 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 exceedences	Number of with Condition 2 Interpretation included	Annual Mean	Overall Compliance (Pass/Fail)
pH pH units	0	0	0	22	0	0	7.53	Pass
ortho-Phosphate (as P) - unspecified mg/l	0	0	0	24	0	0	0.98	Pass
BOD - 5 days (Total) mg/l	25	50	0	4	0	0	4.82	Pass
BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l	25	50	0	20	0	0	5.2	Pass
Total Oxidised Nitrogen (as N) mg/l	35	42	0	24	0	0	3.61	Pass
Total Phosphorus (as P) mg/l	0	0	0	24	0	0	1.56	Pass
Fats, Oils & Greases mg/l	0	0	0	3	0	0	5.69	Pass
Total Nitrogen mg/l	35	42	0	24	0	0	9.72	Pass
COD-Cr mg/l	125	250	0	24	0	0	30.27	Pass
Suspended Solids mg/l	35	87.5	0	24	0	0	8.15	Pass

Parameter	WWDL ELV (Schedule A)	ELV with Condition 2 Interpretation included Note 1	Interim % reduction from influent concentration	Number of sample results	Number of exceedences	Number of with Condition 2 Interpretation included	Annual Mean	Overall Compliance (Pass/Fail)
Conductivity 20 C µS/cm	0	0	0	22	0	0	1328.32	Pass
Ammonia-Total (as N) mg/l	25	30	0	24	0	0	4.23	Pass

Notes:
1– This represents the Emission Limit Values after the Interpretation provided for under Condition 2 of the licence is applied
2 - For parameters where a mean ELV applies

Cause of Exceedance(s):

Not Applicable

Significance of Results:

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

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 - WATERFORD CITY 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	264779, 112002	TPEFF3000D0022SW001	No	No	No	Yes	Moderate

Ambient Monitoring Point from WWDL (or as agreed with EPA)	Irish Grid Reference	Code	Bathing Water	Drinking Water	FWPM	Shellfish	WFD Status
Downstream	266260, 113145	TPEFF3000D0022SW001	No	No	No	Yes	Moderate

2.3.2 Ambient Monitoring Parameter Summary - WATERFORD CITY WWTP

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 discharge from the wastewater treatment plant do not have an observable impact on the water quality.

The discharge from the wastewater treatment plant do not have an observable negative impact on the Water Framework Directive status.

Other Potential cause of deterioration in water quality relevant to this area are: None

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 - WATERFORD CITY WWTP

Parameter	Influent mass loading (kg/year)	Effluent mass emission (kg/year)	Efficiency (% reduction of influent load)	Comment
COD	4069045.78	392275.07	90.36	
SS	2174344.94	105626.07	95.14	
cBOD	1780975.89	69189.28	96.12	
TN	375272.03	126007.06	66.42	
TP	61203.85	20246.2	66.92	

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.

WATERFORD CITY WWTP	
Peak Hydraulic Capacity (m3/day) - As Constructed	82598

WATERFORD CITY WWTP	
DWF to the Treatment Plant (m3/day)	82598
Current Hydraulic Loading - annual max (m3/day)	81996
Average Hydraulic loading to the Treatment Plant (m3/day)	37752
Organic Capacity (PE) - As Constructed	190600
Organic Capacity (PE) - Collected Load (peak week)	115691
Organic Capacity (PE) - Remaining	74909
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
87	Blocked Sewer	0	87

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)
Uncontrolled release	Other	1	No	Yes
Uncontrolled release	Other	1	No	Yes
Uncontrolled release	EO casued by power failure	1	No	Yes
Uncontrolled release	Other	1	No	No
Uncontrolled release	Other	1	No	No
Uncontrolled release	Other	1	No	No

3.4.2 Summary of Overall Incidents

Question	Answer
Number of Incidents in 2018	6
Number of Incidents reported to the EPA via EDEN in 2018	6
Explanation of any discrepancies between the two numbers above	

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 sewer network)	1700	Volume (m3)		0.01	Yes	No	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:

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 (m3)	Monitoring Status
OVERFLOWS FROM WWTP STORM TANKS	265007, 112448	Yes	Unknown	Unknown	80	396844	Monitored
SW1	261617, 111853	Yes	Unknown	Unknown			Not Monitored
SW11	262726, 111371	Yes	Unknown	Unknown			Not Monitored
SW12	263271, 111690	Yes	Unknown	Unknown			Not Monitored
SW19	264268, 110071	Yes	Unknown	Unknown			Not Monitored
SW20	260265, 112653	Yes	Unknown	Unknown			Not Monitored
SW21	260316, 112608	Yes	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 2018 (No. of events)	Total volume discharged in 2018 (m3)	Monitoring Status
SW22	260892, 112569	Yes	Unknown	Unknown			Not Monitored
SW23	260529, 112516	Yes	Unknown	Unknown			Not Monitored
SW24	260696, 112457	Yes	Unknown	Unknown			Not Monitored
SW25	260853, 112461	Yes	Unknown	Unknown			Not Monitored
SW26	260950, 112410	Yes	Unknown	Unknown			Not Monitored
SW27	260152, 112671	Yes	Unknown	Unknown			Not Monitored
SW31	261530, 111571	No	Unknown	Unknown			Not Monitored
SW32	263661, 110856	No	Unknown	Unknown			Not Monitored
SW33	260703, 112111	No	Unknown	Unknown			Not Monitored
SW34	260589, 112002	No	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 2018 (No. of events)	Total volume discharged in 2018 (m3)	Monitoring Status
SW35	260510, 111733	No	Unknown	Unknown			Not Monitored
SW36	260506, 111618	No	Unknown	Unknown			Not Monitored
SW37	260262, 111378	No	Unknown	Unknown			Not Monitored
SW38	259901, 111174	No	Unknown	Unknown			Not Monitored
SW39	259252, 110486	No	Unknown	Unknown			Not Monitored
SW4	261081, 112790	Yes	Unknown	Unknown			Not Monitored
SW40	258951, 110611	No	Unknown	Unknown			Not Monitored
SW41	258986, 110933	No	Unknown	Unknown			Not Monitored
SW42	258447, 111341	No	Unknown	Unknown			Not Monitored
SW43	258455, 111187	No	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 2018 (No. of events)	Total volume discharged in 2018 (m3)	Monitoring Status
SW44	259018, 111417	No	Unknown	Unknown			Not Monitored
SW45	258660, 112275	No	Unknown	Unknown			Not Monitored
SW46	260553, 109947	No	Unknown	Unknown			Not Monitored
SW48	260204, 109819	No	Unknown	Unknown			Not Monitored
SW6	261734, 112665	Yes	Unknown	Unknown			Not Monitored
SW7A	263519, 112238	Yes	Unknown	Unknown			Not Monitored
SW8	263946, 112264	Yes	Unknown	Unknown			Not Monitored
SW9	262239, 111304	Yes	Unknown	Unknown			Not Monitored

4.1.2 Inspection Summary Report

SWO Summary	
How much sewage was discharged via SWOs in the agglomeration in the year (m3)?	

SWO Summary	
Is each SWO identified as non meeting DoEHLG Guidance included in the Programme of Improvements?	Yes
The SWO Assessment included the requirements of relevant of WWDL schedules?	No
Have the EPA been advised of any additional SWOs / charges 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
Waterford North West City Sewerage Scheme	C		No	Not Started		It is no longer intended to progress this scheme. Any future development will be facilitated by the Irish Water New Connections process and any upgrades to the existing network determined by the Drainage Area Plan for Waterford City.

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
D0022-IP:6	Assessment of SWOs, will be conducted as part of the Waterford DAP.	Other	12/31/2020	The Drainage Area Plan commenced in 2018, flow measurement and network surveys are scheduled to come to site in Q2 2019.

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 (e.g. Appendix X).
Shellfish Impact Assessment	Yes	2015	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?	Yes
List reason e.g. additional SWO identified	Specified Improvement Requirements under the licence to be updated in relation to Waterford North West City Sewerage Scheme.
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	
Have these processes commenced?	No
Are all outstanding reports and assessments from previous AERs included as an appendix to this AER	No

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

Signed: Date: 26/03/2019

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

In the appendix include all the detailed or site specific reports that are relevant to the AER. Reports omitted from previous AERs should also be appended here.

Appendix
Appendix 7.1 - Ambient monitoring summary

Appendix. 7.1 Ambient Monitoring

D0022 – Waterford

The WWTP discharges to the Lower Suir Estuary, this is designated as Transitional Water, the Environmental Protection Agency undertakes sampling of this water body. The most recent data set is for 2017.

Waterford City Ambient Monitoring

SW1u EPA

SAMPLE_NO	LOCATION_CODE	DATE_COLLECTED	pH	Temp	Dissolved Oxygen	BOD	Ortho-Phosphate	TN	Ammonia [NH3]	DIN	Chlorphyil	TON
				°C	% sat	mg/l	µg/l P	mg/l	mg/l N		µg/l P	mg/l N
Lower Suir Estuary (Little Island - Cheekpoint)	SR460	30/01/2017	8.1	7.09	98.4		38	2.345	0.045	2.345	1	2.3
	SR460	06/06/2017	8.2	16.06	98.9		25	1.411	0.011	1.411	25	1.4
	SR460	10/07/2017	8.2	18.54	101.7	1		1.527	0.027	1.527	17	1.5
	SR460	28/08/2017	8.1	17.23	83.5	0.5	44	1.22	0.12	1.22	6	1.1
		Average	**8.2**	**14.7**	**95.6**	**0.8**	**35.7**	**1.6**	**0.1**	**1.6**	**12.3**	**1.6**
		95%ile	**8.2**	**18.34**	**101.28**	**0.98**	**43.40**	**2.22**	**0.11**	**2.22**	**23.80**	2.18

SW1d EPA

SAMPLE_NO	LOCATION_CODE	DATE_COLLECTED	pH	Temp	Dissolved Oxygen	BOD	Ortho-Phosphate	TN	Ammonia [NH3]	DIN	Chlorphyil	TON
				°C	% sat	mg/l	µg/l P	mg/l	mg/l N		µg/l P	mg/l N
Lower Suir Estuary (Little Island - Cheekpoint)	SR480	30/01/2017	8	7.33	93.1	1	58	32.32	0.062	2.062	3.3	32.26
	SR480	06/06/2017	8.2	15.86	101.3	1.4	20	60.02	0.02	1.22	3.7	60
	SR480	28/08/2017	8	17.1	86.2	0.5	43	7.04	0.12	0.95	6.2	6.92
		Average	**8.07**	**13.43**	**93.53**	**0.97**	**40.33**	**33.13**	**0.067**	**1.411**	**4.4**	**33.06**
		95%ile	**8.18**	**16.98**	**100.48**	**1.36**	**56.50**	**57.25**	**0.11**	**1.98**	**5.95**	**57.23**