

Annual Environmental Report

2021



Waterford City

D0022-01

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1 EXECUTIVE SUMMARY AND INTRODUCTION TO THE 2021 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 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.

Capital works not funded in RC3. Capital works funding post 2024 will be contingent on the project being included in the 2025-2029 investment period. Additionally a Drainage Area Plan is underway in the agglomeration, with DAP Stage 3 expected to be completed this year.

1.2 TREATMENT SUMMARY

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

- WATERFORD CITY WWTP with a Plant Capacity PE of 190600, the treatment type is 2 - Secondary treatment

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
TPEFF3000D0022SW001	WATERFORD CITY WWTP	Treated	Compliant	N/A

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 WATERFORD CITY WWTP - TREATED DISCHARGE

2.1.1 INFLUENT MONITORING SUMMARY - WATERFORD CITY 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
Suspended Solids mg/l	25	1450	254
Total Phosphorus (as P) mg/l	25	8.00	4.58
BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l	25	271	127
COD-Cr mg/l	25	549	307
Total Nitrogen mg/l	25	40	26
Hydraulic Capacity	N/A	79978	36456

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'. The design of the wastewater treatment plant allows for peak values and therefore the peak loads have not impacted on compliance with Emission Limit Values.

2.1.2 EFFLUENT MONITORING SUMMARY - TPEFF3000D0022SW001

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	25	N/A	N/A	30	Pass
Total Nitrogen mg/l	35	42	N/A	24	N/A	N/A	9.32	Pass
Total Oxidised Nitrogen (as N) mg/l	35	42	N/A	24	N/A	N/A	3.97	Pass
Suspended Solids mg/l	35	87.5	N/A	25	N/A	N/A	8.29	Pass
BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l	25	50	N/A	25	N/A	N/A	4.94	Pass
Ammonia-Total (as N) mg/l	25	30	N/A	24	N/A	N/A	4.84	Pass
pH units	9.00	9.00	N/A	25	N/A	N/A	7.53	Pass
ortho-Phosphate (as P) - unspecified mg/l	N/A	N/A	N/A	25	N/A	N/A	0.350	
Conductivity @20°C µS/cm	N/A	N/A	N/A	25	N/A	N/A	1649	

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)
Total Phosphorus (as P) mg/l	N/A	N/A	N/A	25	N/A	N/A	0.621	
Fats, Oils & Greases mg/l	N/A	N/A	N/A	4	N/A	N/A	1.16	

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):

Not applicable

Significance of Results:

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

2.1.3 AMBIENT MONITORING SUMMARY FOR THE TREATMENT PLANT DISCHARGE TPEFF3000D0022SW001

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 Ecological Status
There is no Ambient data included in the AER.							

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 EQS relates to the Oxygenation and Nutrient Conditions set out in the Surface Water Regulations 2009.

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

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 - WATERFORD CITY WWTP

2.1.4.1 Treatment Efficiency Report - WATERFORD CITY 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	3417716	101843	97
TP	61656	7626	88
TN	351167	114784	67
COD	4133729	371408	91

Parameter	Influent mass loading (kg/year)	Effluent mass emission (kg/year)	Efficiency (% reduction of influent load)
cBOD	1705261	60687	96

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

2.1.4.2 Treatment Capacity Report Summary - WATERFORD CITY 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.

WATERFORD CITY WWTP	
Peak Hydraulic Capacity (m³/day) - As Constructed	82598
DWF to the Treatment Plant (m³/day)	82598
Current Hydraulic Loading - annual max (m³/day)	79978
Average Hydraulic loading to the Treatment Plant (m³/day)	36456
Organic Capacity (PE) - As Constructed	190600
Organic Capacity (PE) - Collected Load (peak week)^{Note1}	116055
Organic Capacity (PE) - Remaining	74545
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 - WATERFORD CITY 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)
There is no Sludge and Other Input data for the Treatment Plant included in the AER.							

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
Spillage	SWO exceptional rainfall and overflow expected	1	No	Yes
Uncontrolled release	EO caused by ragging or blocking	1	No	Yes

Incident Type	Cause	No. of incident occurrences	Recurring (Y/N)	Closed (Y/N)
Uncontrolled release	Blocked Sewer	1	No	Yes
Uncontrolled release	Adverse Weather	1	No	Yes
Uncontrolled release	Adverse Weather	1	No	No
Uncontrolled release	EO caused by pump failure	1	No	No
Uncontrolled release	EO caused by power failure	1	No	No

3.2.2 SUMMARY OF OVERALL INCIDENTS

Question	Answer
Number of Incidents in 2021	8
Number of Incidents reported to the EPA via EDEN in 2021	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 (chamber) where applicable	Irish Grid Ref. (outfall)	Included in Schedule of the WWDL	Significance of the overflow(High / Medium / Low)	Assessed against DoEHLG Criteria	No. of times activated in 2021 (No. of events)	Total volume discharged in 2021 (m3)	Monitoring Status
TBC	261530, 111571	No	Medium	Meeting	Unknown	Unknown	Monitored
TBC	258982, 110906	No	Medium	Not yet Assessed	Unknown	Unknown	Not Monitored
TBC	260541, 111610	No	Medium	Not yet Assessed	Unknown	Unknown	Not Monitored
TBC	259927, 111072	No	Medium	Not yet Assessed	Unknown	Unknown	Not Monitored
TBC	259012, 111409	No	Medium	Not yet Assessed	Unknown	Unknown	Not Monitored
TBC	261505, 111785	No	Medium	Not yet Assessed	Unknown	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	No. of times activated in 2021 (No. of events)	Total volume discharged in 2021 (m3)	Monitoring Status
TBC	261530, 111571	No	Medium	Not yet Assessed	Unknown	Unknown	Not Monitored
TBC	264457, 110271	No	Medium	Not yet Assessed	Unknown	Unknown	Not Monitored
TBC	261750, 112656	No	Medium	Not yet Assessed	Unknown	Unknown	Not Monitored
TBC	257803, 110078	No	Medium	Meeting	Unknown	Unknown	Not Monitored
TBC	263551, 112256	No	Medium	Not Meeting	Unknown	Unknown	Not Monitored
TBC	260145, 109944	No	Medium	Not yet Assessed	Unknown	Unknown	Not Monitored
TBC	264223, 110122	No	Medium	Not yet Assessed	Unknown	Unknown	Not Monitored
TBC	322852, 246228	No	Medium	Not yet Assessed	Unknown	Unknown	Not Monitored
TBC	263656, 110895	No	Medium	Not Meeting	Unknown	Unknown	Not Monitored
SW004	261077, 112775	Yes	Medium	Meeting	Unknown	Unknown	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	No. of times activated in 2021 (No. of events)	Total volume discharged in 2021 (m3)	Monitoring Status
SW006	261499, 112575	Yes	Medium	Meeting	Unknown	Unknown	Monitored
SW008	263924, 112245	Yes	Medium	Not Meeting	Unknown	Unknown	Not Monitored
SW009	262238, 111332	Yes	Medium	Meeting	Unknown	Unknown	Not Monitored
SW011	262700, 111403	Yes	Medium	Meeting	Unknown	Unknown	Not Monitored
SW012	263258, 111765	Yes	Medium	Meeting	Unknown	Unknown	Monitored
SW019	264457, 110271	Yes	Medium	Meeting	Unknown	Unknown	Monitored
SW020	260329, 112787	Yes	Medium	Not yet Assessed	Unknown	Unknown	Not Monitored
SW021	260379, 112742	Yes	Medium	Not yet Assessed	Unknown	Unknown	Not Monitored
SW022	260501, 112718	Yes	Medium	Not yet Assessed	Unknown	Unknown	Not Monitored
SW023	260589, 112698	Yes	Medium	Not yet Assessed	Unknown	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	No. of times activated in 2021 (No. of events)	Total volume discharged in 2021 (m3)	Monitoring Status
SW024	260762, 112650	Yes	Medium	Not yet Assessed	Unknown	Unknown	Not Monitored
SW025	260886, 112570	Yes	Medium	Not yet Assessed	Unknown	Unknown	Not Monitored
SW026	260989, 112555	Yes	Medium	Not yet Assessed	Unknown	Unknown	Not Monitored
SW026	260951, 112405	Yes	Medium	Not yet Assessed	Unknown	Unknown	Not Monitored
SW027	260154, 112819	Yes	Medium	Not yet Assessed	Unknown	Unknown	Not Monitored
SW1	261619, 111853	Yes	Medium	Meeting	Unknown	194931	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 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?	Yes

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
D0022-SIP:01	Waterford North West City Sewerage Scheme	C	31/12/2020	No	Not Started		Awaiting outputs of DAP to determine if measure applicable.

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.

Licence Specific Report	Required by licence	Year included in AER	Included in this AER
Shellfish Impact Assessment	Yes	2020	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?	Yes
List reason e.g. additional SWO identified	To include additional SWOs identified.
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	Yes
List reason e.g. changes to monitoring requirements	Ambient monitoring location changes
Have these processes commenced?	Yes
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:

Signed: Date: 16/05/2022

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

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. Data Source: https://www.catchments.ie/data/#/waterbody/IE_SE_100_0500?k=7v110t

Ambient Monitoring Report Summary Data						
Ambient monitoring point/Coastal Monitoring Code	Irish Grid Reference	Designations				WFD Status
		Bathing Water	Drinking Water	FWPM	Shellfish	
TW30002102SR4002	264720.15,112043.12					Good
TW30002102SR4002	266200.35,113186.62	No	No	No	No	

Ambient Monitoring Results Summary [Bottom]						
Monitoring point	Date	BOD - 5 days (Total)	Dissolved Oxygen %	ortho-Phosphate (as P)	pH	Total Oxidised Nitrogen (as N)
Upstream						
SR460 - Suir Estuary at Little Islar	24/02/2021	1.3	97	0.034	8.1	2.5
SR460 - Suir Estuary at Little Islar	15/06/2021	0.5	99	0.032	8.1	0.71
SR460 - Suir Estuary at Little Islar	15/07/2021	-	93	0.046	8	0.6
SR460 - Suir Estuary at Little Islar	15/09/2021	-	85	0.038	7.9	0.83
	Average	0.5	93.5	0.0375	8.025	1.16
Downstream						
SR480 - Suir Estuary at Glass Hou	24/02/2021	0.5	96	0.032	8	2.6
SR480 - Suir Estuary at Glass Hou	15/06/2021	0.5	101	0.03	8.1	0.85
SR480 - Suir Estuary at Glass Hou	15/07/2021	0.5	95	0.024	8	0.53
SR480 - Suir Estuary at Glass Hou	15/09/2021	0.5	86	0.034	7.9	0.61
	Average	0.5	94.5	0.03	8	1.1475

			Receiving Waters Designation (Yes/No)				Mean (mg/l)		
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	Current WFD Status	cBOD	o-Phosphate (as P)
Upstream Monitoring Point	TW30002102SR4002	264720.15, 112043.12					Good	0.5	0.0375
Downstream Monitoring Point	TW30002102SR4004	266200.35, 113186.62	No	No	No	Yes	Good	0.5	0.03
<i>Difference</i>								<i>0</i>	<i>0.0075</i>
EQS								4	0.04
% of EQS								12.50%	75.00%