

Annual Environmental Report

2021



Wexford town

D0030-02

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7.1 AMBIENT MONITORING SUMMARY

1 EXECUTIVE SUMMARY AND INTRODUCTION TO THE 2021 AER

This Annual Environmental Report has been prepared for D0030-02, Wexford town, in Wexford 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.

No significant changes or improvements under taking in 2021, currently no additional works approved and funded

1.2 TREATMENT SUMMARY

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

- Wexford town WWTP with a Plant Capacity PE of 45000, 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
TPEFF3300D0030SW001	Wexford town 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 WEXFORD TOWN WWTP - TREATED DISCHARGE

2.1.1 INFLUENT MONITORING SUMMARY - WEXFORD TOWN 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	12	503	202
BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l	12	153	79
Total Nitrogen mg/l	12	39	18
Suspended Solids mg/l	12	620	160
Total Phosphorus (as P) mg/l	12	3.15	1.35
Hydraulic Capacity	N/A	28225	13233

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 - TPEFF3300D0030SW001

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	12	N/A	N/A	32	Pass
Suspended Solids mg/l	35	88	N/A	12	N/A	N/A	11	Pass
Temperature °C	25	25	N/A	12	N/A	N/A	7.69	Pass
BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l	25	50	N/A	12	N/A	N/A	4.62	Pass
Total Nitrogen mg/l	15	18	N/A	12	N/A	N/A	5.25	Pass
Total Oxidised Nitrogen (as N) mg/l	15	18	N/A	12	N/A	N/A	4.20	Pass
Ammonia-Total (as N) mg/l	10	12	N/A	12	N/A	N/A	0.701	Pass
pH units	9.00	9.00	N/A	12	N/A	N/A	7.29	Pass
Total Phosphorus (as P) mg/l	2.00	2.40	N/A	12	N/A	N/A	0.168	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 exceedances	Number of exceedances with Condition 2 Interpretation included	Annual Mean	Overall Compliance (Pass/Fail)
Enterococci (Intestinal) cfu/100ml	N/A	N/A	N/A	2	N/A	N/A	8673	
E. Coli MPN/100ml	N/A	N/A	N/A	2	N/A	N/A	23	
Faecal coliforms no./100mls	N/A	N/A	N/A	2	N/A	N/A	29	
Visual Inspection Descriptive	N/A	N/A	N/A	12	N/A	N/A	N/A	

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 TPEFF3300D0030SW001

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
Upstream	301365, 123270	TW33002085SY2003	No	No	No	Yes	Poor
Downstream	307402 121085	TW33002085SY2014	No	No	No	Yes	Poor

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 do not meet the required EQS at the upstream and the downstream monitoring locations. 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 and Ammonia , 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: Tidal effects and inputs for feeder stream and River Sow combined with runoff form surrounding catchment

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

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

2.1.4 OPERATIONAL PERFORMANCE SUMMARY - WEXFORD TOWN WWTP

2.1.4.1 Treatment Efficiency Report - Wexford town 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)
TN	82202	26073	68
SS	712939	56857	92
COD	898322	160618	82
cBOD	351658	22966	93
TP	6021	832	86

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

2.1.4.2 Treatment Capacity Report Summary - Wexford town 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.

Wexford town WWTP	
Peak Hydraulic Capacity (m ³ /day) - As Constructed	30375
DWF to the Treatment Plant (m ³ /day)	10125
Current Hydraulic Loading - annual max (m ³ /day)	28225

Wexford town WWTP	
Average Hydraulic loading to the Treatment Plant (m ³ /day)	13232.99
Organic Capacity (PE) - As Constructed	45000
Organic Capacity (PE) - Collected Load (peak week) ^{Note1}	30343
Organic Capacity (PE) - Remaining	14657
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 - WEXFORD TOWN 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)
Landfill Leachate (delivered by sewer network)	34533	Volume (m3)	295.8	0.66	Yes	Yes	No
Landfill Leachate (delivered by sewer network)	2015	Volume (m3)	8.5	0.01	Yes	Yes	No
Waterworks Sludge	3986.35	Volume (m3)	0	0.1	Yes	Yes	No

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)
Waterworks Sludge	2272.5	Volume (m3)	0.1	0.1	Yes	Yes	No
Waterworks Sludge	29565	Volume (m3)	0.1	0.1	Yes	Yes	No

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	EO caused by power failure	1	No	No
Abatement Equipment offline	Adverse Weather	1	No	Yes
Abatement Equipment offline	Plant or equipment breakdown at WWTP	1	No	No

Incident Type	Cause	No. of incident occurrences	Recurring (Y/N)	Closed (Y/N)
Spillage	Broken Sewer Pipe	1	No	Yes
Trigger Level Reached	SWO exceptional rainfall and overflow expected	1	No	Yes
Trigger Level Reached	SWO exceptional rainfall and overflow expected	1	No	Yes
Trigger Level Reached	SWO exceptional rainfall and overflow expected	1	Yes	Yes
Trigger Level Reached	SWO exceptional rainfall and overflow expected	1	No	Yes
Trigger Level Reached	SWO exceptional rainfall and overflow expected	1	No	Yes
Trigger Level Reached	SWO exceptional rainfall and overflow expected	1	No	Yes
Trigger Level Reached	SWO exceptional rainfall and overflow expected	1	No	Yes
Trigger Level Reached	SWO exceptional rainfall and overflow expected	1	No	Yes
Trigger Level Reached	SWO exceptional rainfall and overflow expected	1	No	Yes
Uncontrolled release	EO caused by pump failure	1	No	Yes
Uncontrolled release	Blocked Sewer	1	No	Yes
Uncontrolled release	Adverse Weather	1	No	Yes

3.2.2 SUMMARY OF OVERALL INCIDENTS

Question	Answer
Number of Incidents in 2021	16

Question	Answer
Number of Incidents reported to the EPA via EDEN in 2021	16
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	300654, 115984	No	Unknown	Not yet Assessed	Unknown	Unknown	Monitored
SW003	303706, 122672	Yes	Medium	Not Meeting	Unknown	Unknown	Not Monitored
SW004	304782, 120996	Yes	Medium	Meeting	Unknown	Unknown	Not Monitored
SW007	305534, 126826	Yes	Unknown	Not yet Assessed	Unknown	Unknown	Not Monitored
SW009	292090, 119545	Yes	Medium	Meeting	Unknown	Unknown	Not Monitored
SW010	298980, 122742	Yes	Medium	Meeting	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
SW011	302920, 115654	Yes	Medium	Meeting	Unknown	Unknown	Not Monitored
SW012	305288, 122926	Yes	Medium	Meeting	Unknown	Unknown	Not Monitored
SW013	304969, 121457	Yes	Medium	Not yet Assessed	Unknown	Unknown	Not Monitored
SW-5	305379, 121458	Yes	Medium	Meeting	Unknown	Unknown	Not Monitored
SW-6	305009, 118086	Yes	Medium	Meeting	Unknown	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 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 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/NAY)	Status of Works	Timeframe for Completing the Work	Comments
D0030-SIP:01	Discharge to be discontinued: SW002 (A0269SW001)	C	31/12/2018	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.

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

Signed: Date: 12/04/2022

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

	Ammonia N	pH	Suspended Solids	Total Nitrogen N	Total Phosphate P	Dissolved Inorganic Nitrogen DIN	Visual Inspection	Faecal Coliforms	E Coli	Enterococci	Biological Oxygen Demand
Date	mg/l	pH units	mg/l	mg/l	mg/l	mg/l	Descriptive	no./100mls	MPN/100mls	cfu/100mls	mg/l
TW33002085SY2003											
3-Feb-2021	0.02	8.1	28	2.74	0.05	2.93	Clear, No Tarry residue, Min.Oil, Detergents, Other Materials	2420	1203	93	2
1-Apr-2021	0.78	8.2	210	1.78	0.07	1.78	Clear, No Tarry residue, Min.Oil, Detergents, Other Materials				3.2
9-Sep-2021	0.44	7.9	106	0.5	0.15	0.44	Clear, No Tarry residue, Min.Oil, Detergents, Other Materials	13	6	11	4
16-Nov-2021	0.19	7.79	4.1	3.5	0.05	3.31	Clear, No Tarry residue, Min.Oil, Detergents, Other Materials				2
Mean	0.3575	7.9975	87.025	2.13	0.08	2.115		1216.5	604.5	52	2.8
TW33002085SY2014											
3-Feb-2021	0.02	8.1	41	3.14	0.07	3.01	Clear, No Tarry residue, Min.Oil, Detergents, Other Materials	> 2420	1733	75	2.7
1-Apr-2021	0.61	8.2	160	1.72	0.19	1.72	Clear, No Tarry residue, Min.Oil, Detergents, Other Materials				2.8
9-Sep-2021	0.53	7.9	131	0.5	0.13	0.5	Clear, No Tarry residue, Min.Oil, Detergents, Other Materials	2420	2420	6	5.4
16-Nov-2021	0.52	7.92	26	3.01	0.05	2.49	Clear, No Tarry residue, Min.Oil, Detergents, Other Materials				2
Mean	0.42	8.03	89.5	2.0925	0.11	1.93		2420	2076.5	40.5	3.225

Ambient Monitoring Point from WWDL (or as agreed with EPA)	Irish Grid Reference	EPA Feature Coding Tool code	Receiving Waters Designation (Y/N)				WFD Status
			Bathing Water	Drinking Water	FWPM	Shellfish	
TW33002085SY2003	301365, 123270	TPEFF3300D0030SW001	No	No	No	Yes	Poor
TW33002085SY2014	307402, 121085	TPEFF3300D0030SW001	No	No	No	Yes	Poor

Ambient Impact Assessment Table

Parameter Name	Upstream Monitoring Point Location	Upstream Monitoring Point Annual Mean	Downstream Monitoring Point Location	Downstream Monitoring Point Annual Mean	EQS (95%ile)	%EQS
BOD mg/l	TW33002085SY2003	2.8	TW33002085SY2014	3.23	4.0	11.25
Ortho-Phosphate (as P) mg/l	TW33002085SY2003	No data	TW33002085SY2014	No data	0.075	
Ammonia (as N) mg/l	TW33002085SY2003	0.376	TW33002085SY2014	0.420	0.140	31.43