Annual Environmental Report

2021

Portlaw

D0274-01

CONTENTS

1 EXECUTIVE SUMMARY AND INTRODUCTION TO THE 2021 AER

This Annual Environmental Report has been prepared for D0274-01, Portlaw, 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.

No significant Capital or Improvement works identified. Ferric dosing equipment will be upgraded in 2022.

1.2 TREATMENT SUMMARY

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

- Portlaw WWTP with a Plant Capacity PE of 2500, the treatment type is 3P - Tertiary 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
TPEFF3100D0274SW001	Portlaw WWTP	Treated	Non-Compliant	ortho-Phosphate (as P) - unspecified mg/l

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 PORTLAW WWTP - TREATED DISCHARGE

2.1.1 INFLUENT MONITORING SUMMARY - PORTLAW 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
Total Nitrogen mg/l	12	143	53
Suspended Solids mg/l	12	884	173
COD-Cr mg/l	12	1984	684
BOD, 5 days with Inhibition (Carbonaceo mg/l	12	1300	403
Total Phosphorus (as P) mg/l	11	42	16
Hydraulic Capacity	N/A	1370	607

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 - TPEFF3100D0274SW001

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	42	Pass
Suspended Solids mg/l	35	88	N/A	12	2	N/A	14	Pass
BOD, 5 days with Inhibition (Carbonaceo mg/l	25	50	N/A	12	2	N/A	11	Pass
pH pH units	9.00	9.00	N/A	12	N/A	N/A	6.99	Pass
ortho-Phosphate (as P) - unspecified mg/l	3.00	3.60	N/A	12	4	N/A	1.66	Fail
Total Nitrogen mg/l	N/A	N/A	N/A	12	N/A	N/A	17	
Ammonia-Total (as N) mg/l	N/A	N/A	N/A	4	N/A	N/A	0.869	
Total Phosphorus (as P) mg/l	N/A	N/A	N/A	12	N/A	N/A	2.38	

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):

Ortho-P exceedance. Dosing being reviewed,

Significance of Results:

Non-compliant to be addressed through amending dosing

2.1.3 AMBIENT MONITORING SUMMARY FOR THE TREATMENT PLANT DISCHARGE TPEFF3100D0274SW001

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	246872, 114969	RS16C030700	No	No	No	No	Poor
Downstream	247936, 115024	RS16C030800	No	No	No	No	Poor

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
BOD - 5 days (Total) mg/l	RS16C030700	0.904	RS16C030800	1.60	1.50	46.4
Chloride mg/l	RS16C030700	15	RS16C030800	19	N/A	
Dissolved Oxygen % Saturation	RS16C030700	110	RS16C030800	108	N/A	
Temperature °C	RS16C030700	12	RS16C030800	14	N/A	
Total Hardness (as CaCO3) mg/l	RS16C030700	66	RS16C030800	112	N/A	
True Colour mg/litre Pt Co	RS16C030700	16	RS16C030800	25	N/A	
pH pH units	RS16C030700	7.80	RS16C030800	7.90	N/A	
Nitrate (as N) mg/l	RS16C030700	3.38	RS16C030800	3.06	N/A	
Total Oxidised Nitrogen (as N) mg/l	RS16C030700	3.38	RS16C030800	3.08	N/A	
Alkalinity-total (as CaCO3) mg/l	RS16C030700	44	RS16C030800	89	N/A	
Nitrite (as N) µg/l	RS16C030700	4.94	RS16C030800	11	N/A	
Conductivity @25°C µS/cm	RS16C030700	175	RS16C030800	264	N/A	

Parameter Name	Upstream Monitoring Point Location	Upstream Monitoring Point Annual Mean	Downstream Monitoring Point Location	Downstream Monitoring Point Annual Mean	EQS	% of EQS
ortho-Phosphate (as P) - unspecified mg/l	RS16C030700	0.024	RS16C030800	0.021	0.035	-8.5
Dissolved Oxygen mg/l	RS16C030700	12	RS16C030800	11	N/A	
Ammonia-Total (as N) mg/l	RS16C030700	0.014	RS16C030800	0.030	0.065	24

Significance of Results:

The WWTP discharge was not compliant with the ELV's set in the wastewater discharge licence for the following: ortho-Phosphate (as P) - unspecified mg/l.

The ambient monitoring results do not meet the required EQS at the downstream monitoring location. 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 - PORTLAW WWTP

2.1.4.1 Treatment Efficiency Report - Portlaw 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	38124	3150	92

Parameter	Influent mass loading (kg/year)	Effluent mass emission (kg/year)	Efficiency (% reduction of influent load)
COD	150273	9477	94
TN	11709	3866	67
cBOD	88630	2422	97
TP	3592	541	85

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

2.1.4.2 Treatment Capacity Report Summary - Portlaw 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.

Portlaw WWTP	
Peak Hydraulic Capacity (m^3/day) - As Constructed	1725
DWF to the Treatment Plant (m^3/day)	360
Current Hydraulic Loading - annual max (m^3/day)	1370
Average Hydraulic loading to the Treatment Plant (m^3/day)	607
Organic Capacity (PE) - As Constructed	2500
Organic Capacity (PE) - Collected Load (peak week)[Note1]	2100
Organic Capacity (PE) - Remaining	400
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 - PORTLAW 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)
Breach of ELV	Dosing pump failure or maintenance at WWTP	1	Yes	No

3.2.2 SUMMARY OF OVERALL INCIDENTS

Question	Answer
Number of Incidents in 2021	1
Number of Incidents reported to the EPA via EDEN in 2021	1
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	246786, 115019	No	Medium	Meeting	Unknown	Unknown	Not Monitored
TBC	246956, 116301	No	Medium	Meeting	Unknown	Unknown	Not Monitored
SW003	247286, 115025	Yes	Low	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?	N/A
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?	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/NA/Y)	Status of Works	Timeframe for Completing the Work	Comments
D0274-SIP:01	Discontinue Secondary Discharge Point (SW002) or achieve ELVs as specified in Schedule A.2.: Secondary Waste Water Discharge(s) & Monitoring, of this licence.	C	31/12/2019	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	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
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: 07/04/2022

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

Ambient Monitoring Summary

The Clodiagh River, into which Portlaw WWTP discharges, is assigned Moderate Status in accordance with 2010 to 2012 monitoring data in support of the Water Framework Directive.

The WWDL requires quarterly Ambient Monitoring of the Receiving Waters at:

- RSC16C030700
- RSC16C030800

SW1u EPA [Source EDEN]		RSC16C030700			Portlaw Br. (S Channel)							
SAMPLE_NO	LOCATION_CODE	DATE_COLLECTED	pH	Dissolved Oxygen	BOD	Ortho-Phosphate	Ammonia	Salinity [Estimated]	Conductivity	Temp @ Testing [Assumed]	Sample Temp	Visual
				% sat	mg/l	mg/l	mg/l	PSU	µS/cm	°C	°C	
21-02382	RSC16C030700	19-Apr	8.1	115	1.4	0.015	-	0.093	190	25	9.7	Clear
21-06063	RSC16C030700	18-May	7.7	104	-	0.021	-	0.079	162	25	10.6	Clear
21-08928	RSC16C030700	20-Jul	7.7	105	-	0.03	-	0.086	175	25	18.2	Clear
21-12723	RSC16C030700	21-Sep	7.8	109	1	0.031	-	0.079	162	25	13.5	Clear
21-14528	RSC16C030700	16-Nov	7.7	116	-	0.022	-	0.092	188	25	10.5	Clear
		Average	7.8	109.8	1.2	0.0	#DIV/0!	0.1				

http://www.chemiasoft.com/chemd/salinity_calculator

SW1d EPA [Source EDEN]		RSC16C030800			Clodiagh Bridge							
SAMPLE_NO	LOCATION_CODE	DATE_COLLECTED	pH	Dissolved Oxygen	BOD	Ortho-Phosphate	Ammonia	Salinity [Estimated]	Conductivity	Temp @ Testing	Sample Temp	Visual
				% sat	mg/l	mg/l	mg/l	PSU	µS/cm	°C	°C	
21-02383	RSC16C030800	19-Apr	7.8	110	1.4	0.012	0.029	0.109	222	25	11.3	Clear
21-06064	RSC16C030800	18-May	7.7	110	1.2	0.027	0.045	0.090	183	25	11.3	Clear
21-08929	RSC16C030800	20-Jul	8.5	115	2.4		0.02	0.224	457	25	24.3	Clear
21-12724	RSC16C030800	21-Sep	7.8	94	1.7	0.024	0.026	0.130	266	25	14.1	Clear
21-14529	RSC16C030800	16-Nov	7.7	113	1.3	0.033	0.032	0.094	193	25	10.6	Clear
		Average	7.9	542	8	0.096	0.129	0.138				

SW1 u/s EPA		RSC16C030700				
Date	**pH**	**DO**	**BOD**	**Temp**	**Ortho phosphate (as P)**	**Ammonia**
19-Apr	8.1	115	1.4	9.7	0.015	-
18-May	7.7	104	-	10.6	0.021	-
20-Jul	7.7	105	-	18.2	0.03	-
21-Sep	7.8	109	1	13.5	0.031	-
16-Nov	7.7	116	-	10.5	0.022	-
Annual Average	**7.80**	**109.80**	**1.20**	**12.50**	**0.02**	**#DIV/0!**
Units	**Scale**	**%**	**Mg/l**		**Mg/l**	**Mg/l**
EQS (Coastal Water Body)	6.0 < pH <9.0	120% > 95%ile > 80%	High Status ≤1.3	-		High Status ≤0.040
			Good Status ≤1.5		*Not specified*	Good Status ≤0.065

SW1 d/s EPA		RSC16C030800				
Date	**pH**	**DO**	**BOD**	**Temp**	**Ortho phosphate (as P)**	**Ammonia**
19-Apr	7.8	110	1.4	11.3	0.012	0.029
18-May	7.7	110	1.2	11.3	0.027	0.045
20-Jul	8.5	115	2.4	24.3	0	0.02
21-Sep	7.8	94	1.7	14.1	0.024	0.026
16-Nov	7.7	113	1.3	10.6	0.033	0.032
Annual Average	**7.95**	**107.25**	**1.68**	**15.25**	**0.02**	**0.03**
Units	**Scale**	**%**	**Mg/l**		**Mg/l**	**Mg/l**
EQS (Coastal Water Body)	6.0 < pH <9.0	120% > 95%ile > 80%	High Status ≤1.3	-		High Status ≤0.040
			Good Status ≤1.5		*Not specified*	Good Status ≤0.065

Figure 2 *– Portlaw WWTP Ambient Monitoring – Comparison of Upstream and Downstream Results*