Annual Environmental Report

2023

Portlaoise

D0001-01

CONTENTS

1 EXECUTIVE SUMMARY AND INTRODUCTION TO THE 2023 AER

This Annual Environmental Report has been prepared for D0001-01, Portlaoise, in Laois 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.

In 2023, the diffusers in the aeration basin were replaced.

1.2 TREATMENT SUMMARY

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

- Portlaoise WWTP with a Plant Capacity PE of 39000, 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
TPEFF1600D0001SW001	Portlaoise WWTP	Treated	Non-Compliant	Ammonia-Total (as N) mg/l 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 PORTLAOISE WWTP - TREATED DISCHARGE

2.1.1 INFLUENT MONITORING SUMMARY - PORTLAOISE 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
BOD, 5 days with Inhibition (Carbonaceous) mg/l	25	295	126
Ammonia-Total (as N) mg/l	25	50	21
COD-Cr mg/l	25	1147	449
Total Phosphorus (as P) mg/l	12	6.77	4.56
ortho-Phosphate (as P) - unspecified mg/l	25	3.82	1.89
pH pH units	25	7.95	7.64
Suspended Solids mg/l	25	692	216
Total Nitrogen mg/l	12	45	32
Hydraulic Capacity	N/A	28322	12072

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 greater than the peak Treatment Plant Capacity. Further details on the plant capacity and efficiency can be found under the sectional 'Operational Performance Summary'.

2.1.2 EFFLUENT MONITORING SUMMARY - TPEFF1600D0001SW001

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)
Chloride mg/l	250	300	N/A	12	N/A	N/A	162	Pass
COD-Cr mg/l	125	250	N/A	25	N/A	N/A	15	Pass
Suspended Solids mg/l	35	87.5	N/A	25	N/A	N/A	2.36	Pass
Fats, Oils & Greases mg/l	15	18	N/A	11	N/A	N/A	12	Pass
pH pH units	6	9	N/A	25	N/A	N/A	7.90	Pass
Nitrate (as N) mg/l	7.3	8.76	N/A	25	N/A	N/A	5.07	Pass
BOD, 5 days with Inhibition (Carbonaceous) mg/l	4	8	N/A	25	N/A	N/A	0.922	Pass
Total Phosphorus (as P) mg/l	2	2.4	N/A	12	N/A	N/A	0.083	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)
Ammonia-Total (as N) mg/l	0.26	0.52	N/A	25	4	2	0.125	Fail
ortho-Phosphate (as P) - unspecified mg/l	0.13	0.26	N/A	25	1	1	0.047	Fail
Nitrite (as N) mg/l	N/A	N/A	N/A	25	N/A	N/A	0.067	
Total Nitrogen mg/l	N/A	N/A	N/A	12	N/A	N/A	6.39	
E. Coli MPN/100ml	N/A	N/A	N/A	1	N/A	N/A	2100	
Enterococci (Intestinal) cfu/100ml	N/A	N/A	N/A	1	N/A	N/A	1600	
Faecal coliforms MPN/100ml	N/A	N/A	N/A	1	N/A	N/A	5000	
Conductivity @20°C µS/cm	N/A	N/A	N/A	12	N/A	N/A	1035	

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):

Inadequate Operational Procedures/Training.

Significance of Results:

The WWTP is non compliant with the ELV's set in the Wastewater Discharge Licence. The impact on receiving waters is assessed further in Section 2.

2.1.3 AMBIENT MONITORING SUMMARY FOR THE TREATMENT PLANT DISCHARGE TPEFF1600D0001SW001

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	246849, 199036	RS14T010170	No	No	No	No	Poor
Downstream	246373, 200616	RS14T010200	No	No	No	No	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 not compliant with the ELV's set in the wastewater discharge licence for the following: Ammonia-Total (as N) mg/l, ortho-Phosphate (as P) - unspecified mg/l.

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 & 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.

As per the 3rd Cycle Draft Barrow Catchment Report (HA 14), the significant pressures on the At Risk TRIGOUE_020 waterbody are Urban Runoff & Urban Waste Water. The Portlaoise WWTP is listed as a significant pressure in the Cycle 3 report.

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 - PORTLAOISE WWTP

2.1.4.1 Treatment Efficiency Report - Portlaoise 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)
TP	21400	391	98
cBOD	588410	4293	99
COD	2092807	70548	97
SS	1005949	10972	99
TN	151097	29990	80

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

2.1.4.2 Treatment Capacity Report Summary - Portlaoise 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.

Portlaoise WWTP	
Peak Hydraulic Capacity (m^3/day) - As Constructed	23400
DWF to the Treatment Plant (m^3/day)	7800
Current Hydraulic Loading - annual max (m^3/day)	28322
Average Hydraulic loading to the Treatment Plant (m^3/day)	12071.88
Organic Capacity (PE) - As Constructed	39000
Organic Capacity (PE) - Collected Load (peak week)[Note1]	31290
Organic Capacity (PE) - Remaining	7710
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 - PORTLAOISE WWTP

'Other inputs' to the waste water treatment plant are summarised in the 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 tanker)	3,232	Weight (Tonnes)	39.4	0.07	No	No	No
Industrial / Commercial Sludge	385.42	Weight (Tonnes)	4.69	0.01	No	No	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 2023.			

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 Uisce Éireann 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	Recurring (Y/N)	Closed (Y/N)
Breach of ELV	Inadequate Operational Procedures/Training	Yes	No
Breach of ELV	Inadequate Operational Procedures/Training	Yes	No
Uncontrolled release	Plant or equipment maintenance at WWTP	No	Yes

3.2.2 SUMMARY OF OVERALL INCIDENTS

Question	Answer
Number of Incidents in 2023	3
Number of Incidents reported to the EPA via EDEN in 2023	3
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 2023 (No. of events)	Total volume discharged in 2023 (m^3)	Monitoring Status
SW002	245317 200018	Yes	Medium Significance	Meeting Criteria	Unknown	Unknown	Monitored
TBC	246382 200622	Yes	Medium Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
TBC	247584 197671	Yes	Medium Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
TBC	246803 199230	Yes	Medium Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
TBC	248605 200403	Yes	Medium Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
TBC	247381 198405	Yes	Medium Significance	Meeting Criteria	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 2023 (No. of events)	Total volume discharged in 2023 (m^3)	Monitoring Status
SW3	246597 199599	Yes	Medium Significance	Not Meeting Criteria	16	45809	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 wastewater discharge by metered SWOs during the year (m^3)?	45809
Is each SWO identified as not meeting DoEHLG Guidance included in the Programme of Improvements?	Yes
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?	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 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
D0001-SIP:01	Discharge to cease: SW3 from old storm water tank at the treatment works	A	29/07/2009	Yes	Works Completed		
D0001-SIP:02	Discharge to cease: SW4 from the inlet works of the plant	A	29/07/2009	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

N/A

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	Included in this AER
Priority Substances 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
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	Capital upgrade
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?	No
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: 27/02/2024

This AER has been produced by Uisce Éireann's Environmental Information System (EIMS) and has been electronically signed off in that system for and on behalf of,

Eleanor Roche

Head of Environmental Regulation.

7 APPENDIX

Appendix
Appendix 7.1 - Ambient Monitoring Summary

Portlaoise Ambient Monitoring Summary 2023

			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)**	**Ammonia (as N)**
Upstream Monitoring Point	246849, 199036	RS14T010170	No	No	No	No	Poor	1.617	0.0457	0.074
Downstream Monitoring Point	246373, 200598	RS14T010200	No	No	No	No	Poor	2.084	0.0399	0.107
Difference								*0.467*	*-0.0058*	*0.033*
EQS								1.500	0.035	0.065
% of EQS								31.111%	-16.462%	50.385%

Portlaoise Ambient Monitoring Summary 2023

Upstream Results										
Date		Ammonia as N	BOD	COD	Dissolved Oxygen	Ortho-P as P	Suspended Solids	pH	Temp	Total Nitrogen
		mg/l	mg/l	mg/l	% Sat.	mg/l	mg/l	pH units	Degrees C	mg/l
26/01/2023	U/S	0.089	1.1	27	96.5	0.021	8.4	8.05	96.5	4.6
23/02/2023	U/S	0.13	1.9	28	93.6	0.022	< 2	8.18	8.8	4.2
29/03/2023	U/S	0.056	1.6	31	94	< 0.02	26.8	8.07	11.9	4.4
27/04/2023	U/S	0.05	1.6	29	97.3	< 0.02	97.3	8.14	11.2	4.3
31/05/2023	U/S	0.069	< 1	< 20	110.8	0.022	< 2	8.2	17.2	4
13/06/2023	U/S	0.044	1.6	< 20	93.6	0.031	< 2	8.28	19.5	3.8
18/07/2023	U/S	0.15	2.4	23	90.3	0.055	< 2	7.68	18.8	2.9
19/09/2023	U/S	0.092	1.4	24	80	0.051	< 2	7.65	15.3	< 2
27/09/2023	U/S	0.036	1.7	34	92	0.26	22.4	7.9	15.6	2.8
26/10/2023	U/S	0.058	1	35	82.1	0.02	< 2	7.87	11.8	3.9
29/11/2023	U/S	0.033	3.2	48	86.5	< 0.02	113.6	7.91	7.5	5.1
18/12/2023	U/S	0.086	1.2	29	86.6	0.024	< 2	7.97	11.5	3.1
Mean		**0.074**	**1.617**	**28.024**	**91.942**	**0.046**	**30.462**	**7.992**	**20.467**	**3.710**
95%ile		**0.139**	**2.760**	**40.850**	**103.375**	**0.147**	**107.080**	**8.236**	**54.150**	**4.825**

Downstream Results										
Date		Ammonia as N	BOD	COD	Dissolved Oxygen	Ortho-P as P	Suspended Solids	pH	Temp	Total Nitrogen
		mg/l	mg/l	mg/l	% Sat.	mg/l	mg/l	pH units	Degrees C	mg/l
26/01/2023	D/S	0.45	2.4	25	92.7	< 0.02	< 2	8.04	6.9	5.1
23/02/2023	D/S	0.23	1	21	95.8	0.022	< 2	8.16	9.1	5.2
29/03/2023	D/S	0.041	1.6	21	95	0.024	10	8.01	12.2	4.7
27/04/2023	D/S	0.045	< 1	< 20	100.9	0.023	100.9	8.2	11	4.2
31/05/2023	D/S	0.029	5.7	< 20	113.5	0.023	< 2	8.03	17.6	6.1
13/06/2023	D/S	0.1	1.8	< 20	89.3	0.16	< 2	8.23	20.9	5.3
18/07/2023	D/S	0.1	3	< 20	92.2	0.054	< 2	7.96	17.9	3.5
19/09/2023	D/S	0.058	1.6	< 20	87.7	0.046	< 2	7.86	16.7	2.8
27/09/2023	D/S	0.048	2.9	< 20	90.3	0.053	38.4	7.82	15.7	2.9
26/10/2023	D/S	0.05	1.8	33	82.4	0.02	< 2	7.83	12.4	4.7
29/11/2023	D/S	0.043	1.5	21	88.8	< 0.02	82.4	8.01	7.5	4.6
18/12/2023	D/S	0.092	1	25	86	0.026	15.2	7.94	11.7	4.6
Mean		**0.107**	**2.084**	**19.238**	**92.883**	**0.040**	**21.400**	**8.008**	**13.300**	**4.475**
95%ile		**0.329**	**4.215**	**28.600**	**106.570**	**0.102**	**90.725**	**8.214**	**19.250**	**5.660**

Note: Where the concentration in the result is less than the limit of detection (LOD), a value of LOD/sqrt(2) was used in calculating the mean and 95%ile concentrations.