Annual Environmental Report

2022

Rathdrum

D0086-01

CONTENTS

1 EXECUTIVE SUMMARY AND INTRODUCTION TO THE 2022 AER

This Annual Environmental Report has been prepared for D0086-01, Rathdrum, in Wicklow 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.

There were no capital works, significant changes or operational changes undertaken in 20221.

1.2 TREATMENT SUMMARY

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

- Rathdrum WWTP with a Plant Capacity PE of 3500, 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
TPEFF3400D0086SW001	Rathdrum 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 RATHDRUM WWTP - TREATED DISCHARGE

2.1.1 INFLUENT MONITORING SUMMARY - RATHDRUM 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 BOD) mg/l	12	469	128
Total Phosphorus (as P) mg/l	12	11	3.14
Total Nitrogen mg/l	12	44	18
COD-Cr mg/l	12	785	266
Suspended Solids mg/l	12	612	102
Hydraulic Capacity	N/A	3376	938

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’. 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 - TPEFF3400D0086SW001

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	13	Pass
Suspended Solids mg/l	20	50	N/A	12	N/A	N/A	3.32	Pass
BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l	12	24	N/A	12	N/A	N/A	2.79	Pass
pH pH units	6.00	9.00	N/A	12	N/A	N/A	7.41	Pass
Ammonia-Total (as N) mg/l	3.00	3.60	N/A	12	N/A	N/A	0.374	Pass
ortho-Phosphate (as P) - unspecified mg/l	1.00	1.20	N/A	12	N/A	N/A	0.146	Pass
Nitrite (as N) mg/l	N/A	N/A	N/A	12	N/A	N/A	1.74	
Total Nitrogen mg/l	N/A	N/A	N/A	12	N/A	N/A	8.99	
Total Phosphorus (as P) mg/l	N/A	N/A	N/A	12	N/A	N/A	0.235	

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)
Nitrate (as N) mg/l	N/A	N/A	N/A	12	N/A	N/A	5.41	

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 TPEFF3400D0086SW001

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	319247, 188744	RS10A050300	No	No	No	No	Good
Downstream	319949, 186279	RS10A050410	No	No	No	No	Good

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	RS10A050300	0.853	RS10A050410	0.945	1.50	6.2
Ammonia-Total (as N) mg/l	RS10A050300	0.018	RS10A050410	0.025	0.065	11.4
ortho-Phosphate (as P) - unspecified mg/l	RS10A050300	0.008	RS10A050410	0.007	0.035	-0.5
Nitrate (as N) mg/l	RS10A050300	0.668	RS10A050410	N/A	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
Conductivity @25°C µS/cm	RS10A050300	64	RS10A050410	N/A	N/A	
Conductivity @20°C µS/cm	RS10A050300	68	RS10A050410	73	N/A	
Total Nitrogen mg/l	RS10A050300	0.635	RS10A050410	0.710	N/A	
Alkalinty as CaCO3 – Gran titration mg/l	RS10A050300	8.42	RS10A050410	N/A	N/A	
Dissolved Oxygen % O2	RS10A050300	102	RS10A050410	104	N/A	
Total Oxidised Nitrogen (as N) mg/l	RS10A050300	0.556	RS10A050410	0.540	N/A	
Total Hardness (as CaCO3) mg/l	RS10A050300	14	RS10A050410	N/A	N/A	
Nitrite (as N) µg/l	RS10A050300	2.83	RS10A050410	N/A	N/A	
True Colour mg/litre Pt Co	RS10A050300	41	RS10A050410	N/A	N/A	
Chloride mg/l	RS10A050300	9.62	RS10A050410	N/A	N/A	
Nitrite (as N) mg/l	RS10A050300	0.007	RS10A050410	0.005	N/A	
Dissolved Oxygen % Saturation	RS10A050300	106	RS10A050410	N/A	N/A	
Temperature °C	RS10A050300	12	RS10A050410	12	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
pH pH units	RS10A050300	6.71	RS10A050410	6.82	N/A	
Dissolved Oxygen mg/l	RS10A050300	11	RS10A050410	11	N/A	

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.

Based on ambient monitoring results a deterioration in Ammonia & BOD concentrations downstream of the effluent discharge is noted.

A deterioration in water quality has been identified, however it is not known if it is or is not caused by the WWTP.

Other causes of deterioration in water quality in the area are unknown.

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 - RATHDRUM WWTP

2.1.4.1 Treatment Efficiency Report - Rathdrum 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	1087	80	93
TN	6123	3067	50
SS	35280	1133	97
cBOD	44350	950	98
COD	92100	4558	95

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

2.1.4.2 Treatment Capacity Report Summary - Rathdrum 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.

Rathdrum WWTP	
Peak Hydraulic Capacity (m^3/day) - As Constructed	2362
DWF to the Treatment Plant (m^3/day)	788
Current Hydraulic Loading - annual max (m^3/day)	3376
Average Hydraulic loading to the Treatment Plant (m^3/day)	937.68
Organic Capacity (PE) - As Constructed	3500
Organic Capacity (PE) - Collected Load (peak week)[Note1]	2148
Organic Capacity (PE) - Remaining	1352
Will the capacity be exceeded in the next three years? (Yes/No)	No

Note 1: 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 - RATHDRUM 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 tanker)	10	Volume (m^3)	0.1	0	Yes	No	No
Domestic /Septic Tank Sludge	10	Weight (Tonnes)	0.1	0	Yes	No	No
Industrial / Commercial Sludge	10	Volume (m^3)	0.1	0	Yes	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 2022.			

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	No. of incident occurrences	Recurring (Y/N)	Closed (Y/N)
Spillage	Blocked Sewer	1	No	Yes

3.2.2 SUMMARY OF OVERALL INCIDENTS

Question	Answer
Number of Incidents in 2022	1
Number of Incidents reported to the EPA via EDEN in 2022	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 2022 (No. of events)	Total volume discharged in 2022 (m^3)	Monitoring Status
SW3	319518 188090	Yes	Low Significance	Meeting Criteria	34	10193	Monitored
SW4	319287 188506	Yes	Low Significance	Meeting Criteria	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 monitored SWOs in the agglomeration in the year (m^3)?	10193
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
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
D0086-SIP:01	Construction of pumping station at old WWTP and decommissioning of old WWTP	C	28/02/2011	Yes	Works Completed		
D0086-SIP:02	SW2 to cease	A	28/02/2011	Yes	Works Completed		
D0086-SIP:03	SW4 to become operational	A	28/02/2011	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	2011	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?	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	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: 25/02/2023

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

Acting Head of Environmental Regulation.

7 APPENDIX

Appendix
Appendix 7.1 - Ambient Monitoring Summary

Rathdrum 2022 Ambient Monitoring Summary

Ambient Monitoring Point from WWDL (or as agreed with EPA)	Irish National Grid Reference (Easting, Northing)	EPA Feature Coding Tool code	Receiving Waters Designation (Yes/No)			
			Bathing Water	Drinking Water	FWPM	Shellfish
Upstream Monitoring Point	319247, 188744	RS10A050300	No	No	No	No
Downstream Monitoring Point	319917, 186316	RS10A050400	No	No	No	No

Ambient Monitoring Point from WWDL (or as agreed with EPA)	Current WFD Status	cBOD (Mean mgl/l)	o-Phosphate (as P) (Mean mg/l)	Ammonia (as N) (mean mg/l)
Upstream Monitoring Point	Good	0.925	0.0078	0.0197
Downstream Monitoring Point	Good	0.945	0.0074	0.0252
Difference		*0.020*	*-0.0004*	*0.0056*
EQS		1.500	0.035	0.065
% of EQS		1.333%	-1.123%	8.594%

2022 Ambient Monitoring Data

Station Name	Sample Date	Biological Oxygen Demand	Ortho-Phosphate P	Ammonium NH4-N	Total Oxidised Nitrogen N	Total Nitrogen	Nitrite N	pH	Dissolved Oxygen % Saturation	Dissolved Oxygen	Temperature	Conductivity @ 20°C
		mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	pH units	% O2	mg/l	Degrees C	µS/cm
Upstream	11-Jan-2022	<0.5	<0.01	0.02	0.7	0.8	<0.006	6.5	108	13.1	7	96
Upstream	9-Feb-2022	0.9	<0.01	<0.02	0.3	0.6	<0.006	6.3	100	12.3	7.6	66
Upstream	8-Mar-2022	0.6	<0.01	0.02	0.6	0.9	<0.006	7.1	100	12.5	6.1	74
Upstream	5-Apr-2022	0.9	<0.01	<0.02	0.6	0.6	<0.006	6.5	102	11.7	9.4	61
Upstream	10-May-2022	1.2	<0.01	<0.02	0.8	0.6	<0.006	7	101	10.8	12.5	69
Upstream	1-June-2022	0.7	0.01	0.02	0.5	0.6	0.006	7	100	10.5	13.2	70
Upstream	5-July-2022	0.6	<0.01	<0.02	0.4	0.6	<0.006	7	105	10.2	16.4	56
Upstream	2-Aug-2022	1.1	<0.01	0.03	0.6	0.6	0.031	6.9	105	9.9	18	76
Upstream	6-Sep-2022	2.4	0.011	0.03	0.1	0.7	0.006	5.9	100	10	15.3	52
Upstream	4-Oct-2022	0.5	<0.01	0.02	0.4	<0.5	<0.006	6.3	102	10.5	14	62
	Mean	**0.925**	**0.0078**	**0.0197**	**0.500**	**0.635**	**0.007**	**6.650**	**102.300**	**11.150**	**11.950**	**68.200**
	95%ile	**1.860**	**0.0106**	**0.0300**	**0.755**	**0.855**	**0.020**	**7.055**	**106.650**	**12.830**	**17.280**	**87.000**
Downstream	11-Jan-2022	0.7	<0.01	0.03	0.6	0.9	<0.006	6.4	107	13	7	103
Downstream	9-Feb-2022	1.1	<0.01	<0.02	0.4	0.5	<0.006	6.4	101	12.3	7.8	69
Downstream	8-Mar-2022	<0.5	<0.01	0.03	0.7	0.9	0.005	7.1	101	12.5	6.1	74
Downstream	5-Apr-2022	0.8	<0.01	0.03	0.6	0.8	0.006	6.7	102	11.7	9.3	65
Downstream	10-May-2022	1.5	<0.01	<0.02	1	0.7	<0.006	7.3	103	11.1	12.3	78
Downstream	1-June-2022	1	<0.01	0.03	0.5	0.8	0.008	8	106	11.1	13.2	75
Downstream	5-July-2022	0.9	<0.01	<0.02	0.4	0.6	<0.006	7	105	9.9	16.9	68
Downstream	2-Aug-2022	1	<0.01	0.05	0.6	0.7	<0.006	6.9	108	10.2	18	81
Downstream	6-Sep-2022	1.5	0.01	0.02	0.2	0.6	0.006	6.1	100	10	15.3	54
Downstream	4-Oct-2022	0.6	<0.01	0.02	0.4	0.6	<0.006	6.3	102	10.5	14	66
	Mean	**0.945**	**0.0074**	**0.0252**	**0.540**	**0.710**	**0.005**	**6.820**	**103.500**	**11.230**	**11.990**	**73.300**
	95%ile	**1.500**	**0.0087**	**0.0410**	**0.865**	**0.900**	**0.007**	**7.685**	**107.550**	**12.775**	**17.505**	**93.100**

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.