Annual Environmental Report

2024

Rathkeale

D0112-01

CONTENTS

1 EXECUTIVE SUMMARY AND INTRODUCTION TO THE 2024 AER

This Annual Environmental Report has been prepared for D0112-01, Rathkeale, in Limerick 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 capital works or operational improvements were undertaken.

1.2 TREATMENT SUMMARY

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

- Rathkeale WWTP with a Plant Capacity PE of 4000, 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
TPEFF1900D0112SW001	Rathkeale WWTP	Treated	Non-Compliant	Ammonia-Total (as N) kg/day

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 RATHKEALE WWTP - TREATED DISCHARGE

2.1.1 INFLUENT MONITORING SUMMARY - RATHKEALE 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 (Carbonaceo mg/l	12	258	103
Suspended Solids mg/l	12	408	97
COD-Cr mg/l	12	794	262
Total Phosphorus (as P) mg/l	12	7.33	3.54
Total Nitrogen mg/l	12	42	24
Hydraulic Capacity	N/A	3763	830

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 - TPEFF1900D0112SW001

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	16	Pass
COD-Cr kg/day	90	N/A	N/A	12	N/A	N/A	13.01	Pass
Suspended Solids mg/l	35	87.5	N/A	12	N/A	N/A	5.60	Pass
Suspended Solids kg/day	25	N/A	N/A	12	N/A	N/A	4.80	Pass
BOD, 5 days with Inhibition (Carbonaceo mg/l	15	30	N/A	12	N/A	N/A	2.12	Pass
BOD, 5 days with Inhibition (Carbonaceo kg/day	10.8	N/A	N/A	12	N/A	N/A	1.54	Pass
pH pH units	9	9	N/A	12	N/A	N/A	7.80	Pass
Ammonia-Total (as N) mg/l	2.4	2.88	N/A	12	N/A	N/A	0.358	Pass
Ammonia-Total (as N) kg/day	1.73	N/A	N/A	12	1	N/A	0.34	Fail

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	2	2.4	N/A	12	N/A	N/A	0.313	Pass
Total Phosphorus (as P) kg/day	1.44	N/A	N/A	12	N/A	N/A	1.54	Pass
ortho-Phosphate (as P) - unspecified mg/l	1	1.2	N/A	12	N/A	N/A	0.191	Pass
ortho-Phosphate (as P) – unspecified kg/day	0.72	N/A	N/A	12	N/A	N/A	0.16	Pass
Enterococci (Intestinal) MPN/100ml	N/A	N/A	N/A	2	N/A	N/A	2208	
Nitrite (as N) mg/l	N/A	N/A	N/A	12	N/A	N/A	0.170	
Nitrate (as N) mg/l	N/A	N/A	N/A	12	N/A	N/A	11	

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)
Faecal coliforms cfu/100ml	N/A	N/A	N/A	2	N/A	N/A	N/A	
Total Nitrogen mg/l	N/A	N/A	N/A	12	N/A	N/A	13	
Conductivity @20°C µS/cm	N/A	N/A	N/A	11	N/A	N/A	654	
Total Oxidised Nitrogen (as N) mg/l	N/A	N/A	N/A	12	N/A	N/A	12	
E. Coli MPN/100ml	N/A	N/A	N/A	2	N/A	N/A	14310	

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):

Refer to Incident Section of Report

Significance of Results:

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

2.1.3 AMBIENT MONITORING SUMMARY FOR THE TREATMENT PLANT DISCHARGE TPEFF1900D0112SW001

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	136062, 141413	RS24D021100	No	No	No	No	Good
Downstream	133751, 143701	RS24D021300	No	No	No	No	Moderate
Downstream	141307, 135489	RS24D021210	No	No	No	No	Moderate

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	RS24D021100	2.22	RS24D021300	2.85	1.50	42.4
BOD - 5 days (Total) mg/l	RS24D021100	2.22	RS24D021210	2.70	1.50	32.2
Ammonia-Total (as N) mg/l	RS24D021100	0.074	RS24D021210	0.051	0.065	-36.2

Parameter Name	Upstream Monitoring Point Location	Upstream Monitoring Point Annual Mean	Downstream Monitoring Point Location	Downstream Monitoring Point Annual Mean	EQS	% of EQS
Ammonia-Total (as N) mg/l	RS24D021100	0.074	RS24D021300	0.112	0.065	58.1
ortho-Phosphate (as P) - unspecified mg/l	RS24D021100	0.083	RS24D021300	0.092	0.035	26
ortho-Phosphate (as P) - unspecified mg/l	RS24D021100	0.083	RS24D021210	0.073	0.035	-27.3
Dissolved Oxygen % Saturation	RS24D021100	83	RS24D021210	N/A	N/A	
Dissolved Oxygen % Saturation	RS24D021100	83	RS24D021300	87	N/A	
Dissolved Oxygen mg/l	RS24D021100	9.18	RS24D021210	N/A	N/A	
True Colour mg/litre Pt Co	RS24D021100	48	RS24D021300	52	N/A	
Nitrite (as N) mg/l	RS24D021100	0.018	RS24D021210	0.017	N/A	
pH pH units	RS24D021100	8.02	RS24D021300	7.85	N/A	
Alkalinity-total (as CaCO3) mg/l	RS24D021100	212	RS24D021300	206	N/A	
Chloride mg/l	RS24D021100	26	RS24D021300	32	N/A	
Dissolved Oxygen mg/l	RS24D021100	9.18	RS24D021300	9.62	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
Enterococci (Intestinal) MPN/100ml	RS24D021100	1414	RS24D021210	1203	N/A	
Temperature °C	RS24D021100	10	RS24D021300	11	N/A	
Total Nitrogen mg/l	RS24D021100	1.82	RS24D021210	1.81	N/A	
Total Oxidised Nitrogen (as N) mg/l	RS24D021100	1.85	RS24D021300	1.78	N/A	
COD-Cr mg/l	RS24D021100	30	RS24D021210	28	N/A	
Conductivity @25°C µS/cm	RS24D021100	504	RS24D021300	522	N/A	
Temperature °C	RS24D021100	10	RS24D021210	9.10	N/A	
True Colour mg/litre Pt Co	RS24D021100	48	RS24D021210	N/A	N/A	
Total Hardness (as CaCO3) mg/l	RS24D021100	232	RS24D021210	N/A	N/A	
Nitrite (as N) mg/l	RS24D021100	0.018	RS24D021300	N/A	N/A	
Total Oxidised Nitrogen (as N) mg/l	RS24D021100	1.85	RS24D021210	N/A	N/A	
Dissolved Oxygen % O2	RS24D021100	99	RS24D021300	N/A	N/A	
Dissolved Oxygen % O2	RS24D021100	99	RS24D021210	99	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
Alkalinity-total (as CaCO3) mg/l	RS24D021100	212	RS24D021210	N/A	N/A	
Chloride mg/l	RS24D021100	26	RS24D021210	N/A	N/A	
Enterococci (Intestinal) MPN/100ml	RS24D021100	1414	RS24D021300	N/A	N/A	
Total Nitrogen mg/l	RS24D021100	1.82	RS24D021300	N/A	N/A	
E. Coli MPN/100ml	RS24D021100	21098	RS24D021300	N/A	N/A	
E. Coli MPN/100ml	RS24D021100	21098	RS24D021210	3255	N/A	
COD-Cr mg/l	RS24D021100	30	RS24D021300	N/A	N/A	
Conductivity @25°C µS/cm	RS24D021100	504	RS24D021210	N/A	N/A	
pH pH units	RS24D021100	8.02	RS24D021210	8.05	N/A	
Total Hardness (as CaCO3) mg/l	RS24D021100	232	RS24D021300	232	N/A	

Significance of Results:

The WWTP discharge was non 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 Ammonia, BOD, Chloride, and Ortho-Phosphate 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 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 - RATHKEALE WWTP

2.1.4.1 Treatment Efficiency Report - Rathkeale 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	1037	95	91
COD	76843	4807	94
SS	28341	1701	94
cBOD	30241	643	98
TN	6921	4042	42

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

2.1.4.2 Treatment Capacity Report Summary - Rathkeale 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.

Rathkeale WWTP	
Peak Hydraulic Capacity (m^3/day) - As Constructed	2938
DWF to the Treatment Plant (m^3/day)	720
Current Hydraulic Loading - annual max (m^3/day)	3763
Average Hydraulic loading to the Treatment Plant (m^3/day)	830
Organic Capacity (PE) - As Constructed	4000
Organic Capacity (PE) - Collected Load (peak week)[Note1]	2074
Organic Capacity (PE) - Remaining	1926
Will the capacity be exceeded in the next three years? (Yes/No)	Yes

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 - RATHKEALE 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
2	Water Pollution	0	2
1	Water Quality	1	0

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)
Uncontrolled release	Adverse Weather	No	Yes
Uncontrolled release	Emergency overflow caused by pump failure	No	Yes

Incident Type	Cause	Recurring (Y/N)	Closed (Y/N)
Uncontrolled release	Emergency overflow caused by power failure	No	Yes
Abatement equipment off-line	Plant or equipment breakdown at WWTP	No	No
Uncontrolled release	Adverse Weather	Yes	No

3.2.2 SUMMARY OF OVERALL INCIDENTS

Question	Answer
Number of Incidents in 2024	5
Number of Incidents reported to the EPA via EDEN in 2024	5
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 2024 (No. of events)	Total volume discharged in 2024 (m3)	Monitoring Status
SW2	135955, 141497	Yes	Low Significance	Meeting Criteria	Unknown	22871	Monitored

The contents presented in this table include the most up to date information available at the time of writing. 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 (m3)?	22871
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?	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
There are no Specified Improvement Programmes for this Agglomeration.							

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	Included in this AER
D0112-01-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?	N/A
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	N/A
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	No

I certify that the information given in this Annual Environmental Report is truthful, accurate and complete:

Signed: Date: 08/07/2025

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

There are no Appendices included