

# Annual Environmental Report

2023



Kilbeggan

D0103-01

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# 1 EXECUTIVE SUMMARY AND INTRODUCTION TO THE 2023 AER

This Annual Environmental Report has been prepared for D0103-01, Kilbeggan, in Westmeath 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 2023.

## 1.2 TREATMENT SUMMARY

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

- Kilbeggan WWTP with a Plant Capacity PE of 2250, 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
TPEFF3200D0103SW001	Kilbeggan WWTP	Treated	Non-Compliant	Total Phosphorus (as P) 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 KILBEGGAN WWTP - TREATED DISCHARGE

#### 2.1.1 INFLUENT MONITORING SUMMARY - KILBEGGAN 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	701	424
BOD, 5 days with Inhibition (Carbonaceous) mg/l	12	274	173
Total Phosphorus (as P) mg/l	12	8.10	5.15
ortho-Phosphate (as P) - unspecified mg/l	12	5.80	3.26
Ammonia-Total (as N) mg/l	12	49	26
pH pH units	12	8.00	7.57
Total Nitrogen mg/l	12	70	35
Suspended Solids mg/l	12	498	211
Hydraulic Capacity	N/A	3257	1525

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 greater 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 - TPEFF3200D0103SW001

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)
<b>COD-Cr mg/l</b>	125	250	N/A	12	N/A	N/A	25	Pass
<b>Suspended Solids mg/l</b>	35	87.5	N/A	12	2	N/A	15	Pass
<b>BOD, 5 days with Inhibition (Carbonaceous) mg/l</b>	25	50	N/A	12	N/A	N/A	2.91	Pass
<b>pH pH units</b>	6	9	N/A	12	N/A	N/A	7.38	Pass
<b>Total Phosphorus (as P) mg/l</b>	1.3	1.56	N/A	12	1	1	0.422	Fail
<b>Ammonia-Total (as N) mg/l</b>	1	2	N/A	12	N/A	N/A	0.085	Pass
<b>Conductivity @20°C µS/cm</b>	N/A	N/A	N/A	12	N/A	N/A	578	

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)
<b>ortho-Phosphate (as P) - unspecified mg/l</b>	N/A	N/A	N/A	12	N/A	N/A	0.209	
<b>Total Oxidised Nitrogen (as N) mg/l</b>	N/A	N/A	N/A	12	N/A	N/A	14	
<b>Total Nitrogen mg/l</b>	N/A	N/A	N/A	12	N/A	N/A	18	
<b>Nitrite (as N) mg/l</b>	N/A	N/A	N/A	12	N/A	N/A	0.126	
<b>Nitrate (as N) mg/l</b>	N/A	N/A	N/A	12	N/A	N/A	14	

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):

**Shock Load to the WWTP**

### 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 TPEFF3200D0103SW001

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
<b>Upstream</b>	232824, 235130	RS25B090415	No	No	No	No	Good
<b>Downstream</b>	229559, 233197	RS25B090450	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
<b>BOD - 5 days (Total) mg/l</b>	RS25B090415	1.96	RS25B090450	1.52	1.50	-29.4
<b>Ammonia-Total (as N) mg/l</b>	RS25B090415	0.052	RS25B090450	0.062	0.065	15.5
<b>ortho-Phosphate (as P) - unspecified mg/l</b>	RS25B090415	0.011	RS25B090450	0.011	0.035	0
<b>pH pH units</b>	RS25B090415	7.81	RS25B090450	7.84	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
Dissolved Oxygen % Saturation	RS25B090415	90	RS25B090450	87	N/A	
Conductivity @20°C µS/cm	RS25B090415	456	RS25B090450	481	N/A	
Dissolved Oxygen mg/l	RS25B090415	9.44	RS25B090450	9.17	N/A	
Total Phosphorus (as P) mg/l	RS25B090415	0.043	RS25B090450	0.067	N/A	
COD-Cr mg/l	RS25B090415	25	RS25B090450	25	N/A	
Total Nitrogen mg/l	RS25B090415	2.00	RS25B090450	2.64	N/A	
Temperature °C	RS25B090415	13	RS25B090450	13	N/A	

### Significance of Results:

The WWTP discharge was not compliant with the ELV's set in the wastewater discharge licence for the following: Total Phosphorus (as P) 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 Ammonia concentration 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 - KILBEGGAN WWTP

### 2.1.4.1 Treatment Efficiency Report - Kilbeggan 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	50259	3412	93
TN	8374	4162	50
TP	1226	98	92
COD	101028	5863	94
cBOD	41110	674	98

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

### 2.1.4.2 Treatment Capacity Report Summary - Kilbeggan 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.

Kilbeggan WWTP	
Peak Hydraulic Capacity (m <sup>3</sup> /day) - As Constructed	1518
DWF to the Treatment Plant (m <sup>3</sup> /day)	506
Current Hydraulic Loading - annual max (m <sup>3</sup> /day)	3257

Kilbeggan WWTP	
Average Hydraulic loading to the Treatment Plant (m <sup>3</sup> /day)	1525
Organic Capacity (PE) - As Constructed	2250
Organic Capacity (PE) - Collected Load (peak week) <sup>Note1</sup>	1860
Organic Capacity (PE) - Remaining	390
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 - KILBEGGAN 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)
<b>There is no Sludge and Other Input data for the Treatment Plant included in the AER.</b>							

## 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
<b>There were no relevant environmental complaints in 2023.</b>			

### 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)
<b>Breach of ELV</b>	Shock load to the WWTP	No	No
<b>Abatement equipment off-line</b>	Plant or equipment breakdown at WWTP	No	Yes
<b>Abatement equipment off-line</b>	Emergency overflow caused by power failure	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 <sup>3</sup> )	Monitoring Status
<b>SW2</b>	232832,235077	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
<b>SW4</b>	232757,234912	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	TBC
<b>TBC</b>	232762,234947	No	Low Significance	Meeting Criteria	Unknown	Unknown	TBC

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 <sup>3</sup> )?	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
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/NAY)	Status of Works	Timeframe for Completing the Work	Comments
<b>D0103-SIP:01</b>	Discharges from SW2 to River Brosna to cease	A	01/01/2016	Yes	Works Completed		
<b>D0103-SIP:02</b>	Discharges from SW3 to River Brosna to cease	A	01/01/2016	Yes	Works Completed		

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
<b>D0103-SIP:03</b>	Discharges from SW4 to River Brosna to cease	A	01/01/2016	Yes	Works Completed		
<b>D0103-SIP:04</b>	Discharges from SW5 to River Brosna to cease	A	01/01/2016	Yes	Works Completed		
<b>D0103-SIP:05</b>	Installation of storm water storage tank and associated storm water overflow	C	31/12/2015	Yes	Works Completed		
<b>D0103-SIP:06</b>	Installation of surface water sewers, hydrocarbon interceptors and storm water outfalls	C	31/12/2015	Yes	Not Started		Not an IW asset.
<b>D0103-SIP:07</b>	New pumping station and rising main to the WWTP	C	31/12/2015	Yes	Works Completed		
<b>D0103-SIP:08</b>	Replacement/rehabilitation of foul sewers	C	31/12/2015	Yes	Not Started		Rehabilitation works are currently being prioritised for pipelines within a national risk scoring system.
<b>D0103-SIP:09</b>	Upgrade to waste water treatment plant and ancillary works	C	31/12/2015	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
<b>No additional improvements planned at this time.</b>				

### 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?	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:

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**

There are no Appendices included.