Annual Environmental Report

2023

Tullamore

D0039-01

CONTENTS

1 EXECUTIVE SUMMARY AND INTRODUCTION TO THE 2023 AER

This Annual Environmental Report has been prepared for D0039-01, Tullamore, in Offaly 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)

- Tullamore WWTP with a Plant Capacity PE of 45000, 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
TPEFF2500D0039SW001	Tullamore 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 TULLAMORE WWTP - TREATED DISCHARGE

2.1.1 INFLUENT MONITORING SUMMARY - TULLAMORE 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	66	48
Total Phosphorus (as P) mg/l	12	17	7.27
COD-Cr mg/l	12	1618	664
ortho-Phosphate (as P) - unspecified mg/l	12	6.17	2.95
Ammonia-Total (as N) mg/l	12	46	27
pH pH units	12	7.59	7.44
Suspended Solids mg/l	12	1140	355
BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l	12	752	276
Hydraulic Capacity	N/A	20000	6489

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 - TPEFF2500D0039SW002

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	20	Pass
Suspended Solids mg/l	15	37.5	N/A	12	N/A	N/A	4.27	Pass
pH pH units	6	9	N/A	12	N/A	N/A	7.76	Pass
BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l	8	16	N/A	12	N/A	N/A	1.24	Pass
Total Phosphorus (as P) mg/l	0.5	0.6	N/A	12	N/A	N/A	0.187	Pass
Ammonia-Total (as N) mg/l	0.5	1	N/A	12	N/A	N/A	0.154	Pass
ortho-Phosphate (as P) - unspecified mg/l	0.25	0.5	N/A	12	N/A	N/A	0.082	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)
Nitrate (as N) mg/l	N/A	N/A	N/A	12	N/A	N/A	19	
Nitrite (as N) mg/l	N/A	N/A	N/A	12	N/A	N/A	0.038	
Total Nitrogen mg/l	N/A	N/A	N/A	12	N/A	N/A	21	
Conductivity @20°C µS/cm	N/A	N/A	N/A	12	N/A	N/A	1381	

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 TPEFF2500D0039SW002

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	233276, 224875	RS25T030300	No	No	No	No	Poor
Downstream	229513, 225049	RS25T030400	No	No	No	No	Moderate

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 compliant with the ELV's set in the wastewater discharge licence.

The ambient monitoring results do not meet the required EQS at the upstream monitoring location. 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 Ortho-P & BOD 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 Lower Shannon (Brosna) Catchment Report (HA 25A), the significant pressure on the At Risk Tullamore_040 waterbody is Urban Runoff. The Tullamore WWTP although listed on Cycle 2 as a significant pressure has been removed from the list of significant pressures 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 - TULLAMORE WWTP

2.1.4.1 Treatment Efficiency Report - Tullamore 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)
COD	1428461	46342	97
cBOD	594949	2859	100
SS	763279	9817	99
TN	104185	48829	53
TP	15645	428	97

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

2.1.4.2 Treatment Capacity Report Summary - Tullamore 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.

Tullamore WWTP	
Peak Hydraulic Capacity (m^3/day) - As Constructed	33000
DWF to the Treatment Plant (m^3/day)	11000
Current Hydraulic Loading - annual max (m^3/day)	20000
Average Hydraulic loading to the Treatment Plant (m^3/day)	6489
Organic Capacity (PE) - As Constructed	45000
Organic Capacity (PE) - Collected Load (peak week)[Note1]	23168
Organic Capacity (PE) - Remaining	21832
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 - TULLAMORE 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)	11856.36	Volume (m^3)	144.37	0.5	Yes	Yes	Yes
WWTP Sludge	18946	Wet Tonnes	230.69	0.8	Yes	Yes	Yes
Private Tankered Sludge	29225.69	Wet Tonnes	355.87	1.23	Yes	Yes	Yes
WWTP Cake Sludge	3663.24	Wet Tonnes	44.61	0.15	Yes	Yes	Yes

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)
Uncontrolled release	Network Infrastructure	No	No
Uncontrolled release	Blocked Sewer	No	Yes

3.2.2 SUMMARY OF OVERALL INCIDENTS

Question	Answer
Number of Incidents in 2023	2
Number of Incidents reported to the EPA via EDEN in 2023	2
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:

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
TBC	234928 225301	No	Low Significance	Not yet Assessed	Unknown	Unknown	Not Monitored
SW010	234224 224931	Yes	Low Significance	Not yet Assessed	Unknown	Unknown	Not Monitored
TBC	TBC	No	Low Significance	Not yet Assessed	Unknown	Unknown	Not Monitored
TBC	TBC	No	Low Significance	Not yet Assessed	Unknown	Unknown	Not Monitored
TBC	234273 225431	No	Low Significance	Not yet Assessed	Unknown	Unknown	Not Monitored
SW007	233445 224836	Yes	Low Significance	Not yet Assessed	Unknown	Unknown	Not Monitored
TBC	233756 225070	No	Low Significance	Not yet Assessed	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
SW003	235074 225080	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
SW004	233175 226540	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
TBC	234691 223785	No	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
SW005	233238 224887	Yes	Low Significance	Not yet Assessed	Unknown	Unknown	Not Monitored
TBC	233045 224853	No	Low Significance	Not yet Assessed	Unknown	Unknown	Not Monitored
TBC	TBC	No	Low Significance	Not yet Assessed	Unknown	Unknown	Not Monitored
SW002	232859 224820	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored

4.1.1 SWO IDENTIFICATION

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)?	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/NA/Y)	Status of Works	Timeframe for Completing the Work	Comments
D0039-SIP:01	Construction of the proposed secondary discharge outfall to the Clodiagh River for p.e. in excess of 30,000, and not greater than 15,000	C	01/01/2012	Yes	Not Started		
D0039-SIP:02	De-commissioning of secondary discharge SW14 (SW002)	C	01/01/2014	Yes	Works Completed		
D0039-SIP:03	De-commissioning of SW003 storm water overflow	C	01/01/2012	Yes	Works Completed		
D0039-SIP:04	De-commissioning of SW004 storm water overflow	C	01/01/2014	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
D0039-SIP:05	De-commissioning of SW005 storm water overflow	C	01/01/2012	Yes	Works Completed		
D0039-SIP:06	De-commissioning of SW007 storm water overflow	C	01/01/2014	Yes	Works Completed		
D0039-SIP:07	Discharge to cease: SW003 to Tullamore River	A	01/01/2012	Yes	Works Completed		
D0039-SIP:08	Discharge to cease: SW004 to Tullamore River	A	01/01/2014	Yes	Works Completed		
D0039-SIP:09	Discharge to cease: SW005 to Tullamore River	A	01/01/2012	Yes	Works Completed		
D0039-SIP:10	Installation of storm water storage tank at the inlet of the works	C	01/01/2012	Yes	Works Completed		
D0039-SIP:11	SW002 to Tullamore River to be discontinued (formerly SW14)	A	01/01/2014	Yes	Works Completed		
D0039-SIP:12	SW007 to Tullamore River to be discontinued	A	01/01/2014	Yes	Works Completed		
D0039-SIP:13	Upgrade of the existing WWTP including the installation of storm water storage tank at the inlet of the works	C	01/01/2012	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
D0039-SIP:14	Upgrading of SW10 to comply with DoE criteria for SWOs.	C	01/01/2014	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?	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	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

Tullamore Ambient Monitoring Summary 2023

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	233276, 224875	RS25T030300	No	No	No	No
Downstream Monitoring Point	229513, 225049	RS25T030400	No	No	No	No

Ambient Monitoring Point from WWDL (or as agreed with EPA)	Current WFD Status	cBOD	o-Phosphate (as P)	Ammonia (as N)
Upstream Monitoring Point	Poor	1.046	0.028	0.0739
Downstream Monitoring Point	Moderate	1.220	0.031	0.0647
Difference		*0.174*	*0.003*	*-0.009*
EQS		1.500	0.035	0.065
% of EQS		11.627%	8.095%	-14.213%

Ambient Monitoring Data 2023

		Temperature	pH	BOD	COD	Suspended solids	Total Nitrogen as N	Total Phosphorus as P	Total Ammonia as N	Ortho-Phosphate as P	Nitrite as N	Nitrate as N	Conductivity	DO	DO
Station	Sample Date	Degrees C	pH units	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	µS/m	mg/l	% sat
Upstream	31/01/2023	4	8	< 1	< 20	11	4.8	0.09	0.038	0.028	0.018	4.325	693	12.1	91.1
Upstream	08/02/2023	4	7.98	1.4	< 20	< 2	4.6	< 0.1	0.07	< 0.02	0.023	3.9	708	12.8	94.1
Upstream	22/02/2023	5	8.1	< 1	< 20	< 2.5	4.3	0.23	0.027	0.02	0.016	0.992	700	11.2	89.1
Upstream	23/02/2023	5.2	8.2	< 1	< 20	< 2.5	4.2	0.15	0.03	0.02	0.013	1.175	702	12	88.4
Upstream	23/03/2023	6.3	7.92	1.1	29	11	3.7	0.07	0.053	0.029	0.016	3.255	638	12	93.7
Upstream	17/04/2023	6.4	7.9	1.3	25	6	3.7	0.06	0.036	0.017	0.01	2.789	691	12.1	95.4
Upstream	29/06/2023	16.2	8.02	<1	<20	5	2.8	0.07	<0.02	0.045	0.023	2.319	650	8.64	88.2
Upstream	20/07/2023	17	8	2.8	55	< 2	3.1	0.52	0.49	0.064	0.021	1.4	632	12	92.1
Upstream	22/08/2023		7.72	< 1	33	< 2.5	3.8	0.17	0.038	0.045	0.026	2.203	702		
Upstream	18/10/2023	4	7.91	< 1	22	0.8	4.1	0.06	0.025	0.006	0.015	3.201	691	11.1	100.2
Upstream	09/11/2023	8.5	7.72	< 1	35	3	4.4	0.039	0.021	0.027	0.017	2.858	701	9.03	80.1
Upstream	14/12/2023	8.1	7.67	1	34	7.5	4	0.042	0.045	0.02	0.022	3.377	674	9.32	74.6
	Mean	**7.700**	**7.928**	**1.046**	**25.309**	**4.369**	**3.958**	**0.131**	**0.0739**	**0.028**	**0.018**	**2.650**	**681.833**	**11.117**	**89.727**
	95%ile	**16.600**	**8.145**	**2.030**	**44.000**	**11.000**	**4.690**	**0.361**	**0.2590**	**0.054**	**0.024**	**4.091**	**704.700**	**12.450**	**97.800**

		Temperature	pH	BOD	COD	Suspended solids	Total Nitrogen as N	Total Phosphorus as P	Total Ammonia as N	Ortho-Phosphate as P	Nitrite as N	Nitrate as N	Conductivity	DO	DO
Station	Sample Date	Degrees C	pH units	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	µS/m	mg/l	% sat
Downstream	31/01/2023	4.2	7.87	1	< 20	4	6.9	0.05	0.035	0.028	0.014	4.835	714	12	90
Downstream	08/02/2023	4	7.86	< 1	< 20	< 2	5.2	< 0.1	0.048	< 0.02	0.016	4.4	730	12.5	94.7
Downstream	22/02/2023	4.9	8.1	< 1	< 20	5	4.2	0.09	0.028	0.019	0.016	0.925	700	11.1	88.1
Downstream	23/02/2023	5.5	8.2	< 1	< 20	< 2.5	4.2	0.22	0.03	0.02	0.014	0.956	704	12.1	88.2
Downstream	23/03/2023	6.1	7.87	2.2	29	13	4.2	0.09	0.038	0.027	0.015	3.366	644	12.6	93.2
Downstream	17/04/2023	6.4	7.8	1.4	21	5	4.3	0.2	0.079	0.076	0.009	3.841	708	12.6	94.5
Downstream	29/06/2023	15.9	7.81	<1	<20	3.5	5.5	0.09	<0.02	0.051	0.023	4.751	702	9.55	96.5
Downstream	20/07/2023	16.7	7.92	1.4	44	< 2	3.7	< 0.1	0.055	0.035	0.016	2.3	651	12.6	92
Downstream	22/08/2023		7.7	< 1	32	2.5	4	0.222	0.022	0.042	0.019	2.907	710		
Downstream	18/10/2023	4.2	7.74	3.3	24	7.6	5.2	0.11	0.381	0.018	0.033	4.371	714	11.6	103.2
Downstream	09/11/2023	9	7.68	< 1	25	4.5	5.3	0.039	< 0.02	0.016	0.016	3.438	741	9.06	82.3
Downstream	14/12/2023	8.3	7.62	1.1	34	5.5	3.9	0.044	0.032	0.023	0.023	3.748	684	8.74	76
	Mean	**7.745**	**7.848**	**1.220**	**23.309**	**4.600**	**4.717**	**0.108**	**0.0647**	**0.031**	**0.018**	**3.320**	**700.167**	**11.314**	**90.791**
	95%ile	**16.300**	**8.145**	**2.695**	**38.500**	**10.030**	**6.130**	**0.221**	**0.2149**	**0.062**	**0.028**	**4.789**	**734.950**	**12.600**	**99.850**

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.