

# Annual Environmental Report

2019



Tullamore

D0039-01

## **CONTENTS**

### **1 EXECUTIVE SUMMARY AND INTRODUCTION TO THE 2019 AER**

- 1.1 ANNUAL STATEMENT OF MEASURES
- 1.2 TREATMENT SUMMARY
- 1.3 ELV OVERVIEW
- 1.4 LICENSE SPECIFIC REPORT INCLUDED IN AER

### **2 TREATMENT PLANT PERFORMANCE AND IMPACT SUMMARY**

- 2.1 TULLAMORE WWTP - TREATED DISCHARGE
  - 2.1.1 INFLUENT SUMMARY - TULLAMORE WWTP
  - 2.1.2 EFFLUENT MONITORING SUMMARY - TULLAMORE WWTP
  - 2.1.3 AMBIENT MONITORING SUMMARY FOR THE TREATMENT PLANT DISCHARGE
  - 2.1.4 OPERATIONAL REPORTS SUMMARY FOR TULLAMORE WWTP
  - 2.1.5 SLUDGE/OTHER INPUTS TO TULLAMORE WWTP

### **3 COMPLAINTS AND INCIDENTS**

- 3.1 COMPLAINTS SUMMARY
- 3.2 REPORTED INCIDENTS SUMMARY
  - 3.2.1 SUMMARY OF INCIDENTS
  - 3.2.2 SUMMARY OF OVERALL INCIDENTS

### **4 INFRASTRUCTURAL ASSESSMENT AND PROGRAMME OF IMPROVEMENTS**

- 4.1 STORM WATER OVERFLOW IDENTIFICATION AND INSPECTION REPORT
  - 4.1.1 SWO IDENTIFICATION AND INSPECTION SUMMARY REPORT
- 4.2 REPORT ON PROGRESS MADE AND PROPOSALS BEING DEVELOPED TO MEET THE IMPROVEMENT PROGRAMME REQUIREMENTS
  - 4.2.1 SPECIFIED IMPROVEMENT PROGRAMME SUMMARY
  - 4.2.2 IMPROVEMENT PROGRAMME SUMMARY
  - 4.2.3 SEWER INTEGRITY RISK ASSESSMENT

### **5 LICENCE SPECIFIC REPORTS**

- 5.1 PRIORITY SUBSTANCES ASSESSMENT

### **6 CERTIFICATION AND SIGN OFF**

- 6.1 SUMMARY OF AER CONTENTS

### **7 APPENDIX**

# 1 EXECUTIVE SUMMARY AND INTRODUCTION TO THE 2019 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.

## 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 INCLUDED IN AER

Assessment / Report	Included in AER
<b>There are no Licence Specific Reports included in the AER.</b>	

## 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	65	39.12
Total Phosphorus (as P) mg/l	12	9.41	7.15
BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l	12	453	230.65
COD-Cr mg/l	12	1069	566.17
Suspended Solids mg/l	12	957	431.82
Hydraulic Capacity	N/A	24051	6575

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 - TPEFF2500D0039SW001

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 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	22.08	Pass
<b>Suspended Solids mg/l</b>	15	37.5	N/A	12	N/A	N/A	4.8	Pass
<b>pH pH units</b>	6-9	6-9	N/A	12	N/A	N/A	7.5	Pass
<b>BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l</b>	8	16	N/A	12	N/A	N/A	1.54	Pass
<b>Total Phosphorus (as P) mg/l</b>	0.5	0.6	N/A	12	N/A	N/A	0.25	Pass
<b>Ammonia-Total (as N) mg/l</b>	0.5	1	N/A	12	1	N/A	0.1	Pass
<b>ortho-Phosphate (as P) - unspecified mg/l</b>	0.25	0.5	N/A	12	N/A	N/A	0.14	Pass
<b>Conductivity 20 C <math>\mu</math>S/cm</b>	N/A	N/A	N/A	12	N/A	N/A	1133.87	
<b>Total Nitrogen mg/l</b>	N/A	N/A	N/A	12	N/A	N/A	21.08	

Notes:

1 – This represents the Emission Limit Values after the Interpretation provided for under Condition 2 of the licence is applied

### 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 TPEFF2500D0039SW001

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 Status
Upstream	233276, 224875	RS25T030300	No	No	No	No	Unassigned
Downstream	229513, 225049	RS25T030400	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
<b>BOD - 5 days (Total) mg/l</b>	RS25T030300	2	RS25T030400	2.88	1.5	58.9
<b>Ammonia-Total (as N) mg/l</b>	RS25T030300	0.05	RS25T030400	0.03	0.065	-23.9
<b>ortho-Phosphate (as P) - unspecified mg/l</b>	RS25T030300	0.03	RS25T030400	0.04	0.035	9
<b>Temperature °C</b>	RS25T030300	11.2	RS25T030400	11.43		
<b>Dissolved Oxygen % Saturation</b>	RS25T030300	84.5	RS25T030400	94.42		
<b>Nitrite (as N) µg/l</b>	RS25T030300	21	RS25T030400	24.61		
<b>Dissolved Oxygen mg/l</b>	RS25T030300	9.3	RS25T030400	10.28		
<b>Chloride mg/l</b>	RS25T030300	28.52	RS25T030400	41.25		
<b>Nitrate (as N) mg/l</b>	RS25T030300	3.15	RS25T030400	5.33		
<b>Total Hardness (as CaCO<sub>3</sub>) mg/l</b>	RS25T030300	398.5	RS25T030400	398.75		
<b>Conductivity @25°C µS/cm</b>	RS25T030300	746.33	RS25T030400	802.08		
<b>Total Oxidised Nitrogen (as N) mg/l</b>	RS25T030300	3.15	RS25T030400	5.36		

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	RS25T030300	8	RS25T030400	7.9		
True Colour mg/litre Pt Co	RS25T030300	40.33	RS25T030400	35.67		
Alkalinity-total (as CaCO3) mg/l	RS25T030300	318.67	RS25T030400	316.25		

### Significance of Results:

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

The ambient monitoring results does not 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 BOD & Ortho-P 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 upstream status is Unassigned and therefore it is unknown if the discharge from the wastewater treatment plant is having 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)
<b>cBOD</b>	582969	5010	99
<b>COD</b>	1430982	71783	95
<b>SS</b>	1091403	15615	99
<b>TN</b>	98880	68542	31
<b>TP</b>	18062	801	96

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 <sup>3</sup> /day) - As Constructed	33000
DWF to the Treatment Plant (m <sup>3</sup> /day)	11000
Current Hydraulic Loading - annual max (m <sup>3</sup> /day)	24051
Average Hydraulic loading to the Treatment Plant (m <sup>3</sup> /day)	6575
Organic Capacity (PE) - As Constructed	45000
Organic Capacity (PE) - Collected Load (peak week) <sup>Note1</sup>	23288
Organic Capacity (PE) - Remaining	21712
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 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>Industrial / Commercial Sludge</b>	178.33	Weight (Tonnes)	21	0.01	Yes	Yes	Yes
<b>Landfill Leachate (delivered by tanker)</b>	16737.4	Weight (Tonnes)	203	0.7	Yes	Yes	No

## 3 COMPLAINTS AND INCIDENTS

### 3.1 COMPLAINTS SUMMARY

A summary of complaints of an environmental nature is included below.

Number of Complaints	Nature of Complaint	Number Open Complaints	Number Closed Complaints
25	Blocked Sewer	0	25

### 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 Irish Water 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)
<b>There were no reportable incidents in 2019.</b>				

### 3.2.2 SUMMARY OF OVERALL INCIDENTS

Question	Answer
Number of Incidents in 2019	0
Number of Incidents reported to the EPA via EDEN in 2019	0
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	Irish Grid Ref.	Included in Schedule A4 of the WWDL	Significance of the overflow(High / Medium / Low)	Assessed against DoEHLG Criteria	No. of times activated in 2019 (No. of events)	Total volume discharged in 2019 (m3)	Monitoring Status
<b>SW10</b>	234389.135, 224711.698	Yes	Unknown	Not Meeting	Unknown	Unknown	Not Monitored
<b>SW7</b>	233420.738, 224845.140	Yes	Unknown	Meeting	Unknown	Unknown	Not Monitored
<b>SW9</b>	234226.185, 224927.800	Yes	Unknown	Not yet Assessed	Unknown	Unknown	Not Monitored
<b>SW5</b>	233238.2, 224887.2	Yes	Unknown	Not yet Assessed	Unknown	Unknown	Not Monitored
<b>TBC</b>	233096.159, 224580.612	No	Unknown	Not yet Assessed	Unknown	Unknown	Not Monitored
<b>TBC</b>	233175.447,	No	Low	Meeting	Unknown	Unknown	Not

WWDL Name / Code for Storm Water Overflow	Irish Grid Ref.	Included in Schedule A4 of the WWDL	Significance of the overflow(High / Medium / Low)	Assessed against DoEHLG Criteria	No. of times activated in 2019 (No. of events)	Total volume discharged in 2019 (m3)	Monitoring Status
	226539.889						Monitored
<b>TBC</b>	234269.426, 225434.882	No	Unknown	Not Yet Assessed	Unknown	Unknown	Not Monitored
<b>TBC</b>	234927.8, 225300.5	No	Unknown	Not Yet Assessed	Unknown	Unknown	Not Monitored
<b>TBC</b>	TBC	No	Unknown	Not yet Assessed	Unknown	Unknown	Not Monitored
<b>TBC</b>	TBC	No	Unknown	Not yet Assessed	Unknown	Unknown	Not Monitored
<b>TBC</b>	232858.843, 224819.729	No	Low	Meeting	Unknown	Unknown	Not Monitored
<b>TBC</b>	232858.843, 224819.729	No	Low	Not Meeting	Unknown	Unknown	Not Monitored
<b>TBC</b>	233763.131, 225143.748	No	Unknown	Not yet Assessed	Unknown	Unknown	Not Monitored
<b>TBC</b>	234690.776, 223785.318	No	Low	Meeting	Unknown	Unknown	Not Monitored
<b>TBC</b>	234983.599, 225128.088	No	Low	Meeting	Unknown	Unknown	Not Monitored

WWDL Name / Code for Storm Water Overflow	Irish Grid Ref.	Included in Schedule A4 of the WWDL	Significance of the overflow(High / Medium / Low)	Assessed against DoEHLG Criteria	No. of times activated in 2019 (No. of events)	Total volume discharged in 2019 (m3)	Monitoring Status
TBC	TBC	No	Unknown	Not yet Assessed	Unknown	Unknown	Not Monitored

SWO Summary	
How much sewage was discharged via SWOs in the agglomeration in the year (m3)?	Unknown
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?	No
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 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>D0039-SIP:01</b>	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		The improvement programme will be reviewed by Irish Water to assess the works required to comply with the licence condition on a prioritised basis
<b>D0039-SIP:02</b>	De-commissioning of secondary discharge SW14 (SW002)	C	01/01/2014	Yes	Works Completed		
<b>D0039-SIP:03</b>	De-commissioning of SW003 storm water overflow	C	01/01/2012	Yes	Works Completed		
<b>D0039-SIP:04</b>	De-commissioning of SW004 storm water	C	01/01/2014	Yes	Works		

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
	overflow				Completed		
<b>D0039-SIP:05</b>	De-commissioning of SW005 storm water overflow	C	01/01/2012	Yes	Works Completed		
<b>D0039-SIP:06</b>	De-commissioning of SW007 storm water overflow	C	01/01/2014	Yes	At Planning Stage	31/12/2020	Drainage Area Plan (DAP) Investigation to be completed. Completion date refers to the completion of the DAP.
<b>D0039-SIP:07</b>	Discharge to cease: SW003 to Tullamore River	A	01/01/2012	Yes	Works Completed		
<b>D0039-SIP:08</b>	Discharge to cease: SW004 to Tullamore River	A	01/01/2014	Yes	Works Completed		
<b>D0039-SIP:09</b>	Discharge to cease: SW005 to Tullamore River	A	01/01/2012	Yes	Works Completed		
<b>D0039-SIP:10</b>	Installation of storm water storage tank at the inlet of the works	C	01/01/2012	Yes	Works Completed		
<b>D0039-SIP:11</b>	SW002 to Tullamore River to be discontinued (formerly SW14)	A	01/01/2014	Yes	Works Completed		
<b>D0039-SIP:12</b>	SW007 to Tullamore River	A	01/01/2014	Yes	At Planning	31/12/2020	Drainage Area Plan (DAP) Investigation to be

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
	to be discontinued				Stage		completed. Completion date refers to the completion of the DAP.
<b>D0039-SIP:13</b>	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		
<b>D0039-SIP:14</b>	Upgrading of SW10 to comply with DoE criteria for SWOs.	C	01/01/2014	Yes	At Planning Stage	31/12/2020	Drainage Area Plan (DAP) Investigation to be completed. Completion date refers to the completion of the DAP.

A summary of the status of any improvements identified by under Condition 5.2 is included below.

## 4.2.2 IMPROVEMENT PROGRAMME SUMMARY

Improvement Identifier	Improvement Description / or any Operational Improvements	Improvement Source	Expected Completion Date	Comments
<b>There are no Improvements Programme for this Agglomeration.</b>				

## 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 Table.

## 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 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	Reference to relevant section of AER
Priority Substances Assessment	Yes	2014	No	

### 5.1 PRIORITY SUBSTANCES ASSESSMENT

The Priority Substances Assessment Report has been included in the AER 2014.

## 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: 05/03/2020

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

Katherine Walshe

Acting Head of Environmental Regulation.

## **7 APPENDIX**

There are no Appendices included.