Annual Environmental Report

2020

Tipperary Town

D0146-01

CONTENTS

7.1 AMBIENT MONITORING SUMMARY

1 EXECUTIVE SUMMARY AND INTRODUCTION TO THE 2020 AER

This Annual Environmental Report has been prepared for D0146-01, Tipperary Town, in Tipperary 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 major capital or operational changes undertaken.

1.2 TREATMENT SUMMARY

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

- TIPPERARY TOWN WWTP - 2020 with a Plant Capacity PE of 9800, 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
TPEFF2900D0146SW001	TIPPERARY TOWN WWTP - 2020	Treated	Non-Compliant	BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l ortho-Phosphate (as P) - unspecified mg/l

1.4 LICENCE SPECIFIC REPORTING INCLUDED IN AER

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

2 TREATMENT PLANT PERFORMANCE AND IMPACT SUMMARY

2.1 TIPPERARY TOWN WWTP - 2020 - TREATED DISCHARGE

2.1.1 INFLUENT MONITORING SUMMARY - TIPPERARY TOWN WWTP - 2020

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
Suspended Solids mg/l	13	518	208.56
Total Phosphorus (as P) mg/l	13	3.7	2.04
Total Nitrogen mg/l	13	26.7	18
COD-Cr mg/l	13	720	340.18
BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l	13	341	124.72
Hydraulic Capacity	N/A	7592	4916

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 tretament 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 - TPEFF2900D0146SW001

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)
COD-Cr mg/l	125	250	N/A	13	N/A	N/A	15.36	Pass
Suspended Solids mg/l	35	87.5	N/A	13	N/A	N/A	6.91	Pass
pH pH units	9	9	N/A	13	N/A	N/A	7.9	Pass
BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l	2.5	5	N/A	13	1	1	1.89	Fail
Ammonia-Total (as N) mg/l	0.15	0.3	N/A	13	N/A	N/A	0.03	Pass
ortho-Phosphate (as P) - unspecified mg/l	0.1	0.2	N/A	13	2	2	0.09	Fail
Total Phosphorus (as P) mg/l	N/A	N/A	N/A	13	N/A	N/A	0.18	
Total Nitrogen mg/l	N/A	N/A	N/A	13	N/A	N/A	15.14	

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):

More stringent ELV requirements and WWTP loading

Significance of Results:

The WWTP was not compliant with the ELV's as set out in the WWDL.

2.1.3 AMBIENT MONITORING SUMMARY FOR THE TREATMENT PLANT DISCHARGE TPEFF2900D0146SW001

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	189770, 135150	RS16A030300	No	No	No	No	Poor
Downstream	189859, 134917	RS16A030400	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	RS16A030300	2.113	RS16A030400	2.329	1.5	14.4

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	RS16A030300	0.989	RS16A030400	0.301	0.065	-1058.4
ortho-Phosphate (as P) - unspecified mg/l	RS16A030300	0.101	RS16A030400	0.128	0.035	77.9
pH pH units	RS16A030300	8.189	RS16A030400	8.057		
Temperature °C	RS16A030300	11.688	RS16A030400	11.086		
COD-Cr mg/l	RS16A030300	18	RS16A030400	20.667		
Suspended Solids mg/l	RS16A030300	9.25	RS16A030400	25.667		
Dissolved Oxygen % Saturation	RS16A030300	79	RS16A030400	71.75		
Conductivity @25°C µS/cm	RS16A030300	763.25	RS16A030400	631.75		
Alkalinity-total (as CaCO3) mg/l	RS16A030300	286.5	RS16A030400	254		
True Colour mg/litre Pt Co	RS16A030300	28.5	RS16A030400	26.75		
Dissolved Oxygen % O2	RS16A030300	78.85	RS16A030400			
Nitrate (as N) mg/l	RS16A030300	2.575	RS16A030400	2.85		
Nitrite (as N) µg/l	RS16A030300	230.675	RS16A030400	163.475		

Parameter Name	Upstream Monitoring Point Location	Upstream Monitoring Point Annual Mean	Downstream Monitoring Point Location	Downstream Monitoring Point Annual Mean	EQS	% of EQS
Total Hardness (as CaCO3) mg/l	RS16A030300	246.667	RS16A030400	247.25		
Total Oxidised Nitrogen (as N) mg/l	RS16A030300	2.8	RS16A030400	3		
Chloride mg/l	RS16A030300	49.45	RS16A030400	35.55		
Dissolved Oxygen mg/l	RS16A030300	8.961	RS16A030400	8.329		

Significance of Results:

The WWTP discharge was not 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, Ammonia, 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 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 - TIPPERARY TOWN WWTP - 2020

2.1.4.1 Treatment Efficiency Report - TIPPERARY TOWN WWTP - 2020

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	3573	309	91
cBOD	218310	3302	98
COD	595422	26879	95
TN	31500	26508	16
SS	365056	12090	97

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

2.1.4.2 Treatment Capacity Report Summary - TIPPERARY TOWN WWTP - 2020

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.

TIPPERARY TOWN WWTP - 2020	
Peak Hydraulic Capacity (m^3/day) - As Constructed	7374
DWF to the Treatment Plant (m^3/day)	2458
Current Hydraulic Loading - annual max (m^3/day)	7592
Average Hydraulic loading to the Treatment Plant (m^3/day)	4916
Organic Capacity (PE) - As Constructed	9800
Organic Capacity (PE) - Collected Load (peak week)[Note1]	9725
Organic Capacity (PE) - Remaining	75
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 - TIPPERARY TOWN WWTP - 2020

'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)	737	Volume (m3)	10	100	Yes	Yes	Yes

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
There were no relevant environmental complaints in 2020.			

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)
Breach of ELV	Shock load to the WWTP	1	Yes	Yes
Breach of ELV	WWTP upgrade required to meet ELV	1	Yes	No

3.2.2 SUMMARY OF OVERALL INCIDENTS

Question	Answer
Number of Incidents in 2020	2
Number of Incidents reported to the EPA via EDEN in 2020	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:

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 2020 (No. of events)	Total volume discharged in 2020 (m3)	Monitoring Status
SW002	189171, 135663	Yes	Low	Meeting	Unknown	Unknown	Not Monitored
SW003	189852, 134931	Yes	Medium	Not Meeting	Unknown	Unknown	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?	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 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
D0146-SIP:01	Appropriate improvements to ensure compliance with the ELVs specified in this licence	C	31/12/2019	Yes	At Planning Stage		The required works are not currently funded in the 2020-2024 period, and will be considered when planning for the next investment plan period.

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
There are no Improvements Programme for this Agglomeration.				

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.

5.a Licence Specific Reports Summary Table

Licence Specific Report	Required by licence	Year included in AER	Included in this AER	Reference to relevant section of 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:

Signed: Date: 01/06/2021

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

Appendix
Appendix 7.1 - Ambient monitoring summary

Tipperary Ambient Monitoring Data 2020

								Parameter	Ammonia N	Biological Oxyg	COD Chemical	Dissolved Oxyg	Ortho-Phospha	pH	Suspended Sol	Temperature
								Max.	--	--	--	--	--	--	--	--
								Min.	--	--	--	--	--	--	--	--
								Test Method	--	--	--	--	--	--	--	--
Category	Entity	Station	Station Reference	Easting	Northing	Sample Refere	Sample Date	Analyst Conclu	mg/l	mg/l	mg/l	mg/l	mg/l	pH units	mg/l	Degrees C
Ambient Monitoring	Ara River	Upstream @ Tipperary WWTP	RS16A030300	189770	135150	20550255	12/02/2020	-	0.04	2	13	12.13	0.08	8.6	11	4.2
Ambient Monitoring	Ara River	Downstream @ Tipperary WWTP	RS16A030400	190921	133293	20550256	12/02/2020	-	0.06	2	11	11.92	0.07	8.7	11	4.1
Ambient Monitoring	Ara River	Upstream @ Tipperary WWTP	RS16A030400	189770	135150	20550538	06/05/2020	-	0.04	2	11	8.17	0.043	8.41	4	11.6
Ambient Monitoring	Ara River	Downstream @ Tipperary WWTP	RS16A030300	190921	133293	20550539	06/05/2020	-	0.06	2	12	6.77	0.029	8.42	4	11.8
Ambient Monitoring	Ara River	Upstream @ Tipperary WWTP	RS16A030400	189770	135150	20551119	26/08/2020	-	0.03	2	36	7.18	0.163	8	5	14.4
Ambient Monitoring	Ara River	Downstream @ Tipperary WWTP	RS16A030300	190921	133293	20551120	26/08/2020	-	0.17	2	39	5.52	0.197	7.8	6	14.1
Ambient Monitoring	Ara River	Upstream @ Tipperary WWTP	RS16A030400	189770	135150	20551524	11/11/2020	-	0.07	2.4	12	9.21	0.107	8.6	17	11.8
Ambient Monitoring	Ara River	Downstream @ Tipperary WWTP	RS16A030300	190921	133293	20551523	11/11/2020	-	0.13	2.9	12	8.66	0.242	8.5	60	11.6

Category	Station	Station Reference	Sample Reference	Sample Date	Parameter Name	Unit	Result
Ambient Monitoring	D/S Tipperary WWTP 300m d/s of outfall	RS16A030320	20550539	06/05/2020	Ammonia-Total (as N)	mg/l c	3.24
Ambient Monitoring	D/S Tipperary WWTP 300m d/s of outfall	RS16A030320	20550539	06/05/2020	BOD - 5 days (Total)	mg/l	1.41
Ambient Monitoring	D/S Tipperary WWTP 300m d/s of outfall	RS16A030320	20550539	06/05/2020	COD-Cr	mg/l	12
Ambient Monitoring	D/S Tipperary WWTP 300m d/s of outfall	RS16A030320	20550539	06/05/2020	Dissolved Oxygen	mg/l	6.77
Ambient Monitoring	D/S Tipperary WWTP 300m d/s of outfall	RS16A030320	20550539	06/05/2020	ortho-Phosphate (as P) - unspecified	mg/l	0.029
Ambient Monitoring	D/S Tipperary WWTP 300m d/s of outfall	RS16A030320	20550539	06/05/2020	pH	pH units	8.42
Ambient Monitoring	D/S Tipperary WWTP 300m d/s of outfall	RS16A030320	20550539	06/05/2020	Suspended Solids	mg/l	2.82
Ambient Monitoring	D/S Tipperary WWTP 300m d/s of outfall	RS16A030320	20550539	06/05/2020	Temperature	°C	11.8

Note: One sample was taken at RS16A030320 in 2020 in addition to sampling undertaken at RS16A030300 and RS16A030400 licenced monitoring points.