Annual Environmental Report

2021

Cappoquin

D0272-01

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Rev 1 Note: Twig Lane WWTP removed from AER as it is not an IW Asset

1 EXECUTIVE SUMMARY AND INTRODUCTION TO THE 2021 AER

This Annual Environmental Report has been prepared for D0272-01, Cappoquin, in Waterford 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 further Capital or Improvement works have been identified.

1.2 TREATMENT SUMMARY

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

- CAPPOQUIN WWTP with a Plant Capacity PE of 2278, the treatment type is 2 - Secondary treatment

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
TPEFF3100D0272SW001	CAPPOQUIN 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 CAPPOQUIN WWTP - TREATED DISCHARGE

2.1.1 INFLUENT MONITORING SUMMARY - CAPPOQUIN 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	15	1760	381
Total Phosphorus (as P) mg/l	15	12	4.91
Ammonia-Total (as N) mg/l	15	68	31
BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l	15	650	146
Suspended Solids mg/l	15	1040	203
Total Nitrogen mg/l	10	61	33
ortho-Phosphate (as P) - unspecified mg/l	15	8.74	3.36
pH units	15	7.19	6.99
Hydraulic Capacity	N/A	2694	333

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 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 - TPEFF3100D0272SW001

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	15	N/A	N/A	11	Pass
Total Oxidised Nitrogen (as N) mg/l	35	42	N/A	15	N/A	N/A	3.98	Pass
Suspended Solids mg/l	35	87.5	N/A	15	N/A	N/A	5.57	Pass
BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l	25	50	N/A	15	N/A	N/A	2.00	Pass
Ammonia-Total (as N) mg/l	10	12	N/A	15	N/A	N/A	0.050	Pass
pH units	9.00	9.00	N/A	15	N/A	N/A	7.15	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)
ortho-Phosphate (as P) - unspecified mg/l	5.00	6.00	N/A	15	N/A	N/A	1.50	Pass
Total Phosphorus (as P) mg/l	N/A	N/A	N/A	15	N/A	N/A	1.64	
Faecal coliforms no./100mls	N/A	N/A	N/A	7	N/A	N/A	1236	
Total Nitrogen mg/l	N/A	N/A	N/A	10	N/A	N/A	5.55	

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 TPEFF3100D0272SW001

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	209929, 98680	RS18B022950	No	No	No	No	Moderate
Downstream	209525, 92588	RS18B023000	No	No	No	No	High

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 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 BOD, ammonia and Ortho-phosphate, concentrations downstream of the effluent discharge is noted.

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 - CAPPOQUIN WWTP

2.1.4.1 Treatment Efficiency Report - CAPPOQUIN 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)
TN	2922	484	83
COD	35510	986	97
SS	18961	504	97
cBOD	13602	181	99
TP	458	149	68

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

2.1.4.2 Treatment Capacity Report Summary - CAPPOQUIN 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.

CAPPOQUIN WWTP	
Peak Hydraulic Capacity (m^3/day) - As Constructed	2278
DWF to the Treatment Plant (m^3/day)	578
Current Hydraulic Loading - annual max (m^3/day)	2694

CAPPOQUIN WWTP	
Average Hydraulic loading to the Treatment Plant (m^3/day)	333
Organic Capacity (PE) - As Constructed	2278
Organic Capacity (PE) - Collected Load (peak week)[Note1]	1294
Organic Capacity (PE) - Remaining	984
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 - CAPPOQUIN 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)
Domestic /Septic Tank Sludge	28.18	Weight (Tonnes)		0.8	No	Yes	Yes
Domestic /Septic Tank Sludge	47.33	Weight (Tonnes)		1.4	No	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 2021.			

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)
There were no reportable incidents in 2021.				

3.2.2 SUMMARY OF OVERALL INCIDENTS

Question	Answer
Number of Incidents in 2021	0
Number of Incidents reported to the EPA via EDEN in 2021	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 (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 2021 (No. of events)	Total volume discharged in 2021 (m3)	Monitoring Status
SWO05	210065, 99409	Yes	Low	Meeting	Unknown	Unknown	Not Monitored
SWO06	210222, 98167	Yes	Low	Meeting	Unknown	8676	Monitored

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 sewage was discharged via monitored SWOs in the agglomeration in the year (m3)?	8676
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
D0272-SIP:01	Provision of new secondary waste water treatment plant and ancillary works	C	30/06/2015	Yes	Works Completed		
D0272-SIP:02	Provision of Twig Lane Pumping Station, storm water detention tank and outfall associated with SW005.	C	30/06/2015	Yes	Works Completed		
D0272-SIP:03	Provision of upgrade collection system for Cappoquin	C	30/06/2015	Yes	Works Completed		
D0272-SIP:04	SW000 Primary Discharge Point to be Discontinued	C	30/06/2015	Yes	Works Completed		
D0272-SIP:05	SW002 Secondary Discharge Point to be Discontinued	C	30/06/2015	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
D0272-SIP:06	SW003 Secondary Discharge Point to be discontinued	C	30/06/2015	Yes	Works Completed		
D0272-SIP:07	SW004 Secondary Discharge Point to be discontinued	C	30/06/2015	Yes	Not Started		TA submitted in 2020 to remove SW004 from the WWDA as not an IW asset.
D0272-SIP:08	SW005 Provision of storm water overflows to comply with the criteria outlined in the DoECLG 'Procedures and Criteria in relation to Storm Water Overflows' (1995).	C	30/06/2015	Yes	Works Completed		
D0272-SIP:09	SW006 Provision of storm water overflows to comply with the criteria outlined in the DoECLG 'Procedures and Criteria in relation to Storm Water Overflows' (1995).	C	30/06/2015	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
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	Year included in AER	Included in this AER
Priority Substances Assessment	Yes	2014	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
Has a Technical amendment/licence review application been submitted to the Agency by IW?	Yes
List reason e.g. additional SWO identified	To remove SW004 from the licence
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?	Yes
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: 10/05/2022

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

Ambient Monitoring Summary

Annual ambient monitoring results show that the discharge from the WWTP is having a low impact on the receiving waters and does not affect the EQS status of the River Blackwater.

The U/S Sampling point used is circa 1km downstream of Avonmore Bridge Sampling Point [31003146BR1110]. There were not any results available for the prescribed sampling point.

SW1u Station RS18B022900

Date	pH	DO	BOD	Temp	Orthophosphate (as P)	Ammonia
9-Feb-2021	7.77	98	< 1	5.5	0.03	0.005
26-May-2021	7.55	123	1	12	0.08	0.005
21-Dec-2021	7.93	104.4	< 1	8.4	0.025	0.02
-	-	-	-	-	-	-
Annual Average	**7.75**	**108.47**	**1.00**	**8.63**	**0.05**	**0.01**
Units	**Scale**	**%**	**Mg/l**		**Mg/l**	**Mg/l**
EQS (Coastal Water Body)	6.0 < pH <9.0	120% < 95%ile > 80%	High Status ≤1.3 Good Status ≤1.5	-	*Not specified*	High Status ≤0.040 Good Status ≤0.065

SW1d Station RS18B022950						
Date	**pH**	**DO**	**BOD**	**Temp**	**Orthophosphate (as P)**	**Ammonia**
9-Feb-2021	7.85	100	< 1	5.4	0.03	0.005
26-May-2021	7.47	106	1	14	0.05	0.005
21-Dec-2021	7.9	98.1	< 1	8.3	0.027	0.02
-	-	-	-	-	-	-
Annual Average	**7.74**	**101.37**	**1.00**	**9.23**	**0.04**	**0.01**
Units	**Scale**	**%**	**Mg/l**		**Mg/l**	**Mg/l**
EQS (Coastal Water Body)	6.0 < pH <9.0	120% < 95%ile > 80%	High Status ≤1.3 Good Status ≤1.5	-	*Not specified*	High Status ≤0.040 Good Status ≤0.065

The D/S Sampling point used is circa 4km downstream of the prescribed point [31003144BR2120]. This point is not easily accessible; the point used is at Villierstown Pier.

EQS Comparison of U/S and D/S Annual Mean Samples

			Receiving Waters Designation (Yes/No)					Mean (mg/l)		
Ambient Monitoring Point from WWDL (or as agreed with EPA)	Irish National Grid Reference (Easting, Northing)	EPA Feature Coding Tool code	Bathing Water	Drinking Water	FWPM	Shellfish	Current WFD Status	cBOD	o-Phosphate (as P)	Ammonia (as N)
Upstream Monitoring Point		RS18B022900 - 1km d/s Cappoquin Br					High	0.750	0.035	0.018
Downstream Monitoring Point		RS18B022950 Villierstown Pier	No	No	No	No	High	1.125	0.043	0.025
Difference								*-0.375*	*-0.008*	*-0.008*
EQS								1.300	0.025	0.040
% of EQS								87%	170%	63%