Annual Environmental Report

2022

Shannon Town

D0045-01

CONTENTS

1 EXECUTIVE SUMMARY AND INTRODUCTION TO THE 2022 AER

This Annual Environmental Report has been prepared for D0045-01, Shannon Town, in Clare 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 was no major capital or operational changes undertaken

1.2 TREATMENT SUMMARY

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

- Shannon Town WWTP with a Plant Capacity PE of 28500, 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
TPEFF0300D0045SW001	Shannon Town 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 SHANNON TOWN WWTP - TREATED DISCHARGE

2.1.1 INFLUENT MONITORING SUMMARY - SHANNON TOWN 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	50	29
Ammonia-Total (as N) mg/l	12	42	23
Total Phosphorus (as P) mg/l	12	8.90	5.22
Suspended Solids mg/l	15	359	201
ortho-Phosphate (as P) - unspecified mg/l	9	4.91	2.71
COD-Cr mg/l	15	698	402
BOD, 5 days with Inhibition (Carbonaceo mg/l	12	220	136
Hydraulic Capacity	N/A	19557	11984

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 - TPEFF0300D0045SW001

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	17	N/A	N/A	24	Pass
Suspended Solids mg/l	35	87.5	N/A	17	N/A	N/A	7.16	Pass
Ammonia-Total (as N) mg/l	35	42	N/A	12	N/A	N/A	0.850	Pass
BOD, 5 days with Inhibition (Carbonaceo mg/l	25	50	N/A	12	N/A	N/A	7.74	Pass
Temperature °C	25	25	N/A	16	N/A	N/A	13	Pass
Total Oxidised Nitrogen (as N) mg/l	15	18	N/A	12	1	N/A	7.58	Pass
pH pH units	9	9	N/A	17	N/A	N/A	7.84	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)
Total Nitrogen mg/l	N/A	N/A	N/A	12	N/A	N/A	8.92	
Conductivity @25°C µS/cm	N/A	N/A	N/A	7	N/A	N/A	2030	
Conductivity @20°C µS/cm	N/A	N/A	N/A	6	N/A	N/A	1394	
Total Phosphorus (as P) mg/l	N/A	N/A	N/A	12	N/A	N/A	2.12	

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 TPEFF0300D0045SW001

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
Downstream	144527, 159156	TW03004128SN2005	No	No	No	No	Poor
Downstream	138528, 159128	TW03004128SN2006	No	No	No	No	Poor

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 coastal/transitional ambient monitoring results do not meet the required EQS. The EQS relates to the Oxygenation and Nutrient Conditions set out in the Surface Water Regulations 2009.

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 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 is 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 have an observable negative impact on the Water Framework Directive status.

2.1.4 OPERATIONAL PERFORMANCE SUMMARY - SHANNON TOWN WWTP

2.1.4.1 Treatment Efficiency Report - Shannon Town 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	68636	18113	74
COD	879982	45196	95
SS	440028	13725	97
cBOD	316958	15701	95
TP	12166	4298	65

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

2.1.4.2 Treatment Capacity Report Summary - Shannon Town 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.

Shannon Town WWTP	
Peak Hydraulic Capacity (m^3/day) - As Constructed	13686
DWF to the Treatment Plant (m^3/day)	6312
Current Hydraulic Loading - annual max (m^3/day)	19557

Shannon Town WWTP	
Average Hydraulic loading to the Treatment Plant (m^3/day)	11984
Organic Capacity (PE) - As Constructed	28500
Organic Capacity (PE) - Collected Load (peak week)[Note1]	17445
Organic Capacity (PE) - Remaining	11055
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 - SHANNON TOWN 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)
There is no Sludge and Other Input data for the Treatment Plant included in the AER.							

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 2022.			

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	No. of incident occurrences	Recurring (Y/N)	Closed (Y/N)
Other	Shock load to the WWTP	1	Yes	Yes
Uncontrolled release	Broken Sewer Pipe	1	No	Yes
Uncontrolled release	Broken Sewer Pipe	1	No	Yes

Incident Type	Cause	No. of incident occurrences	Recurring (Y/N)	Closed (Y/N)
Uncontrolled release	Broken Sewer Pipe	1	No	Yes

3.2.2 SUMMARY OF OVERALL INCIDENTS

Question	Answer
Number of Incidents in 2022	4
Number of Incidents reported to the EPA via EDEN in 2022	4
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 2022 (No. of events)	Total volume discharged in 2022 (m3)	Monitoring Status
SW2	143382,159984	Yes	Low Significance	Meeting Criteria	Unknown	8979	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)?	8979
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
D0045-SIP:01	Refurbish the existing WWTP and upgrade it, resulting in a capacity to treat a population equivalent of 35,000.	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
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
There is no Licence Specific Report Required in this AER Annual Review.			

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	N/A
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: 20/04/2023

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

Acting Head of Environmental Regulation.

7 APPENDIX

Appendix
Appendix 7.1 - Ambient monitoring summary

Ambient Monitoring Point from WWDL (or as agreed	Irish Grid Reference	EPA Feature Coding Tool code	Receiving Waters Designation (Y/N)				WFD Status
			Bathing Water	Drinking Water	FWPM	Shellfish	
SN310 - Tradaree (Bunratty Buoy)	144527; 159156	TW03004128SN2005	No	No	No	No	Poor
SN330 - Carraig Bay Buoy	138528; 159128	TW03004128SN2006	No	No	No	No	Poor

Parameter Name	Upstream Monitoring Point Location	Upstream Monitoring Point Annual Mean	Downstream Monitoring Point Location	Downstream Monitoring Point Annual Mean	High Status	Good Status
Ammonia (mg/l)	SN310 - Tradaree (Bunratty Buoy)	0.067	SN330 - Carraig Bay Buoy	1.14		
BOD (mg/l)	SN310 - Tradaree (Bunratty Buoy)	<1	SN330 - Carraig Bay Buoy	Not tested	<3	<4
Ortho Phosphate (mg/l)	SN310 - Tradaree (Bunratty Buoy)	0.031	SN330 - Carraig Bay Buoy	0.035		
Dissolved Oxygen (% SAT)	SN310 - Tradaree (Bunratty Buoy)	95	SN330 - Carraig Bay Buoy	97	Lower Limit >80% Higher Limit <120%	Lower Limit >70% Higher Limit
pH (pH units)	SN310 - Tradaree (Bunratty Buoy)	8.13	SN330 - Carraig Bay Buoy	8.1		
Salinity (PSU)	SN310 - Tradaree (Bunratty Buoy)	6.45	SN330 - Carraig Bay Buoy	12.45		
Silica (mg/l)	SN310 - Tradaree (Bunratty Buoy)	2.425	SN330 - Carraig Bay Buoy	1.887		
TON (mg/l)	SN310 - Tradaree (Bunratty Buoy)	0.8	SN330 - Carraig Bay Buoy	0.59		
Transparency	SN310 - Tradaree (Bunratty Buoy)	0.2	SN330 - Carraig Bay Buoy	0.2		
Chlorophyll A	SN310 - Tradaree (Bunratty Buoy)	1.75	SN330 - Carraig Bay Buoy	1.4		
Pheophytin A	SN310 - Tradaree (Bunratty Buoy)	1.74	SN330 - Carraig Bay Buoy	1.33		

Ambient Monitoring Results Summary

Monitoring point	Date	Ammonia (mg/l)	BOD (mg/l)	Ortho Phosphate (mg/l)	Dissolved Oxygen (% SAT)	pH (pH units)	Salinity (PSU)	Silica (mg/l)	TON (mg/l)	Transparency	Chlorophyll A	Pheophytin A
SN310 - Tradaree (Bunratty Buoy)	31/05/2021 (surface)	0.057	<1	0.04	108	8.2	4.1	2.2	0.83	0.2	1.8	1.4
SN310 - Tradaree (Bunratty Buoy)	09/08/2021 (Bottom)	0.1	<1	0.014	106	8.1	10.6	2	0.6	0.2		
SN310 - Tradaree (Bunratty Buoy)	01/03/2021 (Surface)	0.034	<1	0.024	87	8	0.2	3.6	1.3	0.2	0.29	0.55
SN310 - Tradaree (Bunratty Buoy)	01/03/2021 (Bottom)	0.065	<1	0.022	93	8.3	0.2	3.6	1.3	0.2		
SN310 - Tradaree (Bunratty Buoy)	09/08/2021 (Surface)	0.11	<1		92	8.1	3.4	2.4	0.71	0.2	2.9	3.4
SN310 - Tradaree (Bunratty Buoy)	31/05/2021 (Bottom)	0.033	<1	0.046	91	8	10.5	1.7	0.68	0.2		
SN310 - Tradaree (Bunratty Buoy)	06/09/2021 (Surface)	0.066	<1	0.042	97	8.3	10.3	2	0.48	0.2	2	1.6
SN310 - Tradaree (Bunratty Buoy)	06/09/2021 (Bottom)	0.07	<1	0.031	87	8.1	12.3	1.9	0.48	0.2		

Monitoring point	Date	Ammonia (mg/l)	BOD (mg/l)	Ortho Phosphate (mg/l)	Dissolved Oxygen (% SAT)	pH (pH units)	Salinity (PSU)	Silica (mg/l)	TON (mg/l)	Transparency	Chlorophyll A	Pheophytin A
SN330 - Carraig Bay Buoy	31/05/2021 (surface)	0.058	Not tested	0.032	99	8.1	13.5	1.3	0.54	0.2	2	1.1
SN330 - Carraig Bay Buoy	09/08/2021 (Bottom)	0.066	Not tested	<0.005	95	8	21.4	1	0.33	0.2		
SN330 - Carraig Bay Buoy	01/03/2021 (Surface)	0.042	Not tested	0.034	105	8.3	0.2	3.6	0.98	0.2	0.41	0.72
SN330 - Carraig Bay Buoy	01/03/2021 (Bottom)	0.032	Not tested	0.023	106	8.3	0.2	3.6	1.2	0.2		
SN330 - Carraig Bay Buoy	09/08/2021 (Surface)	0.067	Not tested	<0.005	100	8	11.8	1.7	0.52	0.2	2.2	2
SN330 - Carraig Bay Buoy	31/05/2021 (Bottom)	0.053	Not tested	0.03	97	8.1	17.7	1.1	0.47	0.2		
SN330 - Carraig Bay Buoy	06/09/2021 (Surface)	0.068	Not tested	0.046	88	8	17.3	1.4	0.37	0.2	1	1.5
SN330 - Carraig Bay Buoy	06/09/2021 (Bottom)	0.1	Not tested	0.049	89	8	17.3	1.4	0.33	0.2		