Annual Environmental Report

2021

Strokestown

D0228-01

CONTENTS

1 EXECUTIVE SUMMARY AND INTRODUCTION TO THE 2021 AER

This Annual Environmental Report has been prepared for D0228-01, Strokestown, in Roscommon 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.

None

1.2 TREATMENT SUMMARY

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

- Strokestown WWTP with a Plant Capacity PE of 3060, 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
TPEFF2600D0228SW001	Strokestown 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 STROKESTOWN WWTP - TREATED DISCHARGE

2.1.1 INFLUENT MONITORING SUMMARY - STROKESTOWN 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	24	3072	703
Total Phosphorus (as P) mg/l	12	7.10	3.46
Suspended Solids mg/l	24	2365	485
Ammonia-Total (as N) mg/l	12	36	18
Total Nitrogen mg/l	12	51	26
BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l	12	1428	307
Hydraulic Capacity	N/A	2314	771

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 - TPEFF2600D0228SW001

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	24	N/A	N/A	16	Pass
Suspended Solids mg/l	25	62	N/A	24	N/A	N/A	3.82	Pass
pH units	9.00	9.00	N/A	12	N/A	N/A	7.61	Pass
BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l	4.00	8.00	N/A	12	N/A	N/A	1.18	Pass
Ammonia-Total (as N) mg/l	1.50	1.80	N/A	24	N/A	N/A	0.308	Pass
ortho-Phosphate (as P) - unspecified mg/l	0.500	0.600	N/A	24	N/A	N/A	0.182	Pass
Total Phosphorus (as P) mg/l	N/A	N/A	N/A	24	N/A	N/A	0.302	
Total Nitrogen mg/l	N/A	N/A	N/A	12	N/A	N/A	8.09	
Conductivity @20°C µS/cm	N/A	N/A	N/A	12	N/A	N/A	576	

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 TPEFF2600D0228SW001

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	193233, 280592	RS26S080050	No	No	No	No	Poor
Downstream	194261, 280949	RS26S080100	No	No	No	No	Poor

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	RS26S080050	1.07	RS26S080100	1.01	1.50	-3.9
Ammonia-Total (as N) mg/l	RS26S080050	0.041	RS26S080100	0.036	0.065	-7.6
ortho-Phosphate (as P) - unspecified mg/l	RS26S080050	0.018	RS26S080100	0.022	0.035	10.9
Temperature °C	RS26S080050	13	RS26S080100	12	N/A	
Dissolved Oxygen % Saturation	RS26S080050	76	RS26S080100	88	N/A	
Total Nitrogen mg/l	RS26S080050	0.811	RS26S080100	0.928	N/A	
Dissolved Oxygen mg/l	RS26S080050	8.49	RS26S080100	9.57	N/A	
pH units	RS26S080050	7.63	RS26S080100	7.77	N/A	

Significance of Results:

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

The ambient monitoring results meet the required EQS. The EQS relates to the Oxygenation and Nutrient Conditions set out in the Surface Water Regulations 2009.

The discharge from the wastewater treatment plant does not have an observable impact on the water quality.

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: NO

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 - STROKESTOWN WWTP

2.1.4.1 Treatment Efficiency Report - Strokestown 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)
TP	968	91	91
TN	7286	2215	70
COD	215714	4837	98
SS	148968	1147	99
cBOD	85887	322	100

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

2.1.4.2 Treatment Capacity Report Summary - Strokestown 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.

Strokestown WWTP	
Peak Hydraulic Capacity (m^3/day) - As Constructed	2295
DWF to the Treatment Plant (m^3/day)	765
Current Hydraulic Loading - annual max (m^3/day)	2314

Strokestown WWTP	
Average Hydraulic loading to the Treatment Plant (m^3/day)	771
Organic Capacity (PE) - As Constructed	3060
Organic Capacity (PE) - Collected Load (peak week)[Note1]	1161
Organic Capacity (PE) - Remaining	1899
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 - STROKESTOWN 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 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
There are no Storm Water Overflows in this Agglomeration.							

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 SWOs in the agglomeration in the year (m3)?	0
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?	N/A
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
D0228-SIP:01	Addition of phosphate removal to discharge from SW1	C	01/01/2012	Yes	Works Completed		
D0228-SIP:02	Upgrade Storm Water Overflow SW3 to comply with the criteria outlined in DoEHLG.....	C	31/12/2020	Yes	Works Completed		
D0228-SIP:03	WWTP and ancillary works	C	31/12/2020	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	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
Has a Technical amendment/licence review application been submitted to the Agency by IW?	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	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:

Signed: Date: 24/06/2022

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

D0228-01 Strokestown Agglomeration:-Ambient Monitoring Upstream 2021 - River Strokestown – (26S08-0050 Bridge at S. End of Strokestown)									
Sample Type	**Date**	**Code**	**Ammonia (mg/l)**	**BOD (mg/l)**	**Dissolved Oxygen (% Saturation)**	**pH (unit)**	**Temperature (deg C)**	**Ortho-p (PO4-P) (mg/l)**	**Total Nitrogen (mg/l)**
Upstream	21/01/2021	21440199	0.03	1.1	66.1	7.6	4.9	0.017	
Upstream	03/02/2021	21440357	0.021	1.2	91.2	7.6	6.4	0.016	
Upstre3am	30/03/2021	21441158	0.027	1.7	96	7.83	10.1	0.026	
Upstream	25/05/2021	21442025	<0.02	<1	85.5	7.66	12.1	0.011	
Upstream	22/06/2021	21442385	0.021	1.1	82.8	7.9	17.1	0.014	
Upstream	27/07/2021	21442973	0.045	1	64.8	7.4	20.7	0.017	
Upstream	12/08/2021	21443248	<0.02	1	51.5	7.7	16.5	0.015	
Upstream	21/09/2021	21443931	<0.02	<1	47.1	7.7	15.5	0.025	
Upstream	07/10/2021	21444247	0.079	1.4	76.3	7.5	16.7	0.025	
Upstream	25/11/2021	21445058	0.115	<1	70	7.5	8.1	0.02	
Ambient Monitoring Result (Mean)			0.04	1.15	73.13	7.64	12.81	0.0186	
Surface Water Regulation 2009 Good Status (mean) Table 9 (Note 1)			≤0.065	≤1.50		Soft 4.5 <pH<6.0 Hard 6.0<pH<9.0	.	≤0.035	
Ambient Monitoring Result (95 Percentile)			0.0988	1.565	93.84	7.87	19.08	0.0255	
Surface Water Regulation 2009 Good Status (95%ile) Table 9 (Note 2)			≤0.14	≤2.6	80<95%ile<120			≤0.075	
Status Upstream (Note 3)			Good	Good	Good	Hard		Good	

Note 1: Limit (mean) for good status waters as per Table 9, Part A, schedule 4 of the European Communities Environmental Objectives (Surface Water) Regulations, 2009 S.I. No. 272 of 2009. Note – calculated figures for Ammonia as N do not consider variants in temperature or pH.

Note 2: Limit (95%ile) for good status waters as per Table 9, Part A, Schedule 4 of The European Communities Environmental Objectives (Surface Water) Regulations, 2009) S.I. No. 272 of 2009.

Note 3: Limit (mean) for good status waters as per Table 9, Part A, Schedule 4 of The European Communities Environmental Objectives (Surface Water) Regulations, 2009) S.I. No. 272 of 2009.

D0228-01 Strokestown Agglomeration : - Ambient Monitoring Downstream 2021 – River Strokestown – (26S08-100 – D/s Strokestown (standing stone)									
Sample Type	**Date**	**Code**	**Ammonia (mg/l)**	**BOD (mg/l)**	**Dissolved Oxygen (% Saturation)**	**pH (unit)**	**Temperature (deg C)**	**Ortho-p (PO4-P) (mg/l)**	**Total Nitrogen (mg/l)**
Downstream	21/01/2021	21440200	0.036	1.1	74.1	7.6	5.1	0.018	
Downstream	03/02/2021	21440358	0.063	1.9	93	7.6	6.2	0.019	
Downstream	30/03/2021	21441159	0.044	2.2	96.2	7.88	10	0.022	
Downstream	25/05/2021	21442024	<0.02	<1	92.8	7.79	12.2	0.014	
Downstream	22/06/2021	21442384	0.025	1	85.1	8	17.3	0.017	
Downstream	27/07/2021	21442974	0.036	<1	75.1	7.5	20	0.028	
Downstream	12/08/2021	21443249	<0.02	<1	67.7	7.8	16.1	0.023	
Downstream	21/09/2021	21443932	<0.02	<1	70.2	7.7	15.5	0.027	
Downstream	07/10/2021	21444248	0.042	1	87.3	7.66	16.1	0.021	
Downstream	25/11/2021	21445059	0.105	<1	94.3	7.7	8.1	0.034	
Ambient Monitoring Result (Mean)			0.041	1.22	83.58	7.72	12.66	0.022	
Surface Water Regulation 2009 Good Status (mean) Table 9 (Note 1)			≤0.065	≤1.50		Soft 4.5 <pH<6.0 Hard 6.0<pH<9.0		≤0.035	
Ambient Monitoring Result (95 Percentile)			0.086	2.065	95.34	7.95	18.78	0.0313	
Surface Water Regulation 2009 Good Status			≤0.14	≤2.6	80<95%ile<120			≤0.075	
Status Upstream (Note 3)			Good	Good	Good	Hard		Good	

Note 1: Limit (mean) for good status waters as per Table 9, Part A, schedule 4 of the European Communities Environmental Objectives (Surface Water) Regulations, 2009 S.I. No. 272 of 2009. Note – calculated figures for Ammonia as N do not consider variants in temperature or pH.

Note 2: Limit (95%ile) for good status waters as per Table 9, Part A, Schedule 4 of The European Communities Environmental Objectives (Surface Water) Regulations, 2009) S.I. No. 272 of 2009.

Note 3: Limit (mean) for good status waters as per Table 9, Part A, Schedule 4 of The European Communities Environmental Objectives (Surface Water) Regulations, 2009) S.I. No. 272 of 2009.