Annual Environmental Report

2021

Galway City

D0050-01

CONTENTS

1 EXECUTIVE SUMMARY AND INTRODUCTION TO THE 2021 AER

This Annual Environmental Report has been prepared for D0050-01, Galway City, in Galway 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)

- GALWAY WWTP with a Plant Capacity PE of 170000, 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
TPEFF1100D0050SW001	GALWAY 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 GALWAY WWTP - TREATED DISCHARGE

2.1.1 INFLUENT MONITORING SUMMARY - GALWAY 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	25	775	449
Ammonia-Total (as N) mg/l	25	22	16
BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l	25	285	163
pH units	25	7.70	7.38
Total Nitrogen mg/l	25	29	19
Suspended Solids mg/l	25	446	236
Total Phosphorus (as P) mg/l	25	7.00	4.13
Hydraulic Capacity	N/A	81580	53602

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 - TPEFF1100D0050SW010

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	25	N/A	N/A	27	Pass
Total Nitrogen mg/l	35	42	N/A	25	N/A	N/A	13	Pass
Suspended Solids mg/l	35	88	N/A	25	N/A	N/A	8.58	Pass
Ammonia-Total (as N) mg/l	25	30	N/A	25	N/A	N/A	0.428	Pass
BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l	25	50	N/A	25	N/A	N/A	3.25	Pass
Total Oxidised Nitrogen (as N) mg/l	20	24	N/A	25	2	N/A	12	Pass
pH units	9.00	9.00	N/A	25	N/A	N/A	7.66	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 Phosphorus (as P) mg/l	N/A	N/A	N/A	25	N/A	N/A	0.638	
Conductivity @20°C µS/cm	N/A	N/A	N/A	25	N/A	N/A	2206	

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 TPEFF1100D0050SW010

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	130256, 224636	TW12005248GY1001	No	No	No	No	Good
Downstream	135305, 223508	CW12005240GY2003	No	No	No	No	Good
Downstream	124624, 222727	CW12005240GY2007	No	No	No	No	Good
Downstream	130681, 223127	TW12005248GY1003	No	No	No	No	Good
Downstream	118892, 221674	CW03005222GY3002	No	No	No	No	High
Downstream	122942, 220865	CW03005222GY3001	No	No	No	No	High
Downstream	130759, 223872	TW12005248GY1002	No	No	No	No	Good
Downstream	121015, 215849	CW03005222GY3005	No	No	No	No	High
Downstream	129218, 221179	CW12005240GY2005	No	No	No	No	Good
Downstream	127844, 222691	CW12005240GY2001	No	No	No	No	Good
Downstream	132347, 222892	CW12005240GY2002	No	No	No	No	Good

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	124989, 217429	CW03005222GY3006	No	No	No	No	High
Downstream	126132, 221137	CW12005240GY2006	No	No	No	No	Good
Downstream	130968, 221287	CW12005240GY2004	No	No	No	No	Good
Downstream	134988, 222037	CW12005240GY2009	No	No	No	No	Good
Downstream	135184, 223306	CW12005240GY2008	No	No	No	No	Good
Downstream	129955, 222760	TW12005248GY1004	No	No	No	No	Good

Where the receiving water body is not a river or where the data is not in EDEN – the Ambient data will be appended.

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.

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 - GALWAY WWTP

2.1.4.1 Treatment Efficiency Report - GALWAY 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	353486	246292	30
cBOD	3072381	61478	98
COD	8451171	507995	94
TP	77747	12078	84
SS	4445438	162341	96

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

2.1.4.2 Treatment Capacity Report Summary - GALWAY 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.

GALWAY WWTP	
Peak Hydraulic Capacity (m^3/day) - As Constructed	135000
DWF to the Treatment Plant (m^3/day)	45000
Current Hydraulic Loading - annual max (m^3/day)	81580

GALWAY WWTP	
Average Hydraulic loading to the Treatment Plant (m^3/day)	53602
Organic Capacity (PE) - As Constructed	170000
Organic Capacity (PE) - Collected Load (peak week)[Note1]	103256
Organic Capacity (PE) - Remaining	66744
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 - GALWAY 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)
Landfill Leachate (delivered by sewer network)	78025	Volume (m3)		100	Yes	No	No

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
1	Discharge to waters	0	1

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)
Uncontrolled release	Other	1	No	Yes
Uncontrolled release	Other	1	No	No
Uncontrolled release	EO caused by pump failure	1	No	Yes

3.2.2 SUMMARY OF OVERALL INCIDENTS

Question	Answer
Number of Incidents in 2021	3
Number of Incidents reported to the EPA via EDEN in 2021	3
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
SW005	133294, 224744	Yes	Low	Not yet Assessed	Unknown	Unknown	Monitored
SW006	137761, 224816	Yes	Low	Meeting	Unknown	Unknown	Monitored
SW007	131555, 227566	Yes	Unknown	Not yet Assessed	Unknown	Unknown	Monitored
SW008	129696, 224768	Yes	Low	Not yet Assessed	Unknown	Unknown	Not Monitored
SW017	126016, 223778	Yes	Low	Not yet Assessed	Unknown	Unknown	Not Monitored
SW018	128635, 224062	Yes	Low	Not yet Assessed	Unknown	Unknown	Not Monitored

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
SW019	129811, 224776	Yes	Low	Not yet Assessed	Unknown	Unknown	Not Monitored
SW020	129645, 225526	Yes	Unknown	Not yet Assessed	Unknown	Unknown	Not Monitored
SW021	131300, 225796	Yes	Low	Not yet Assessed	Unknown	Unknown	Not Monitored
SW022	131198, 226070	Yes	Low	Not yet Assessed	Unknown	Unknown	Not Monitored
SW023	132374.828401695, 224416.048343016	Yes	Low	Not yet Assessed	Unknown	Unknown	Not Monitored
SWOO2	129581, 223202	Yes	Low	Not yet Assessed	Unknown	Unknown	Monitored
SWOO3	126008.709724305, 223155.58281685	Yes	Low	Meeting	Unknown	Unknown	Not 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 SWOs in the agglomeration in the year (m3)?	Unknown
Is each SWO identified as not meeting DoEHLG Guidance included in the Programme of Improvements?	N/A

SWO Summary	
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
D0050-SIP:01	SW009 (SD09) to be discontinued	A	01/05/2014	Yes	At Planning Stage		Drainage Area Plan Investigation Study to be completed. Completion date 2024+
D0050-SIP:02	SW011 (SD11) to be discontinued	A	21/12/2015	Yes	At Planning Stage		Drainage Area Plan Investigation Study to be completed. Completion date 2024+

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
D0050-SIP:03	SW012 (SD12) to be discontinued	A	01/05/2011	Yes	Works Completed		
D0050-SIP:04	SW013 (SD13) to be discontinued	A	21/12/2015	Yes	Works Completed		
D0050-SIP:05	SW014 (SD14) to be discontinued	A	01/05/2011	Yes	Works Completed		
D0050-SIP:06	SW015 (SD15) to be discontinued	A	01/05/2011	Yes	Works Completed		
D0050-SIP:07	WWTP upgrade and ancillary works	C	01/09/2012	Yes	Works Completed		
D0050-SIP:08	Upgrade to SWO -SD10	C	01/05/2014	Yes	Works Completed		
D0050-SIP:09	Upgrading of SWO02 Storm Water Overflow to comply with the criteria outlined in DoEHLG	C	01/09/2012	Yes	Works Completed		
D0050-SIP:10	Upgrading of SWO03 Storm Water Overflow to comply with the criteria outlined in DoEHLG	C	01/05/2014	Yes	At Planning Stage		Drainage Area Plan Investigation Study to be completed. Completion date 2024+

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
D0050-SIP:11	Upgrading of SWO05 Storm Water Overflow to comply with the criteria outlined in DoEHLG	C	01/05/2014	Yes	At Planning Stage		Drainage Area Plan Investigation Study to be completed. Completion date 2024+
D0050-SIP:12	Upgrading of SWO06 Storm Water Overflow to comply with the criteria outlined in DoEHLG	C	01/05/2014	Yes	At Planning Stage		Drainage Area Plan Investigation Study to be completed. Completion date 2024+
D0050-SIP:13	Upgrading of SWO07 Storm Water Overflow to comply with the criteria outlined in DoEHLG	C	01/05/2014	Yes	At Planning Stage		Drainage Area Plan Investigation Study to be completed. Completion date 2024+
D0050-SIP:14	Upgrading of SWO08 Storm Water Overflows to comply with the criteria outlined in DoEHLG	C	01/05/2014	Yes	At Planning Stage		Drainage Area Plan Investigation Study to be completed. Completion date 2024+
D0050-SIP:15	Upgrading of SWO17 Storm Water Overflow to comply with the criteria outlined in DoEHLG	C	01/05/2014	Yes	At Planning Stage		Drainage Area Plan Investigation Study to be completed. Completion date 2024+

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
D0050-SIP:16	Upgrading of SWO18 Storm Water Overflow to comply with the criteria outlined in DoEHLG	C	01/05/2014	Yes	At Planning Stage		Drainage Area Plan Investigation Study to be completed. Completion date 2024+
D0050-SIP:17	Upgrading of SWO19 Storm Water Overflow to comply with the criteria outlined in DoEHLG.	C	01/05/2014	No	At Planning Stage		Drainage Area Plan Investigation Study to be completed. Completion date 2024+
D0050-SIP:18	Upgrading of SWO20 Storm Water Overflow to comply with the criteria outlined in DoEHLG.	C	01/05/2014	Yes	At Planning Stage		Drainage Area Plan Investigation Study to be completed. Completion date 2024+
D0050-SIP:19	Upgrading of SWO21 Storm Water Overflow to comply with the criteria outlined in DoEHLG	C	01/05/2014	Yes	At Planning Stage		Drainage Area Plan Investigation Study to be completed. Completion date 2024+
D0050-SIP:20	Upgrading of SWO22 Storm Water Overflow to comply with the criteria outlined in DoEHLG	C	01/05/2014	Yes	At Planning Stage		Drainage Area Plan Investigation Study to be completed. Completion date 2024+

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
D0050-SIP:21	Upgrading of SWO23 Storm Water Overflow to comply with the criteria outlined in DoEHLG	C	01/05/2014	Yes	At Planning Stage		
D0050-SIP:22	Replacement of stand-by pump at Parkavera Pumping Station SD04 emergency overflow	C	14/07/2010	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?	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: 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 - Other

Ballyloughane Bathing Water Results 2021

Sample Date	E.coli Result	Intestinal Enterococci Result	Water Quality
13/09/2021	41	4	Excellent
06/09/2021	63	28	Excellent
30/08/2021	86	2	Excellent
23/08/2021	74	22	Excellent
16/08/2021	74	11	Excellent
09/08/2021	288	230	Sufficient
03/08/2021	74	30	Excellent
26/07/2021	10	6	Excellent
19/07/2021	<10	2	Excellent
12/07/2021	98	39	Excellent
05/07/2021	41	5	Excellent
28/06/2021	10	4	Excellent
21/06/2021	<10	2	Excellent
14/06/2021	20	3	Excellent
08/06/2021	31	4	Excellent
01/06/2021	<10	2	Excellent
24/05/2021	<10	2	Excellent

Grattan Beach Bathing Water Results 2021

Sample Date	E.coli Result	Intestinal Enterococci Result	Water Quality
13/09/2021	86	7	Excellent
06/09/2021	30	8	Excellent
30/08/2021	31	4	Excellent
23/08/2021	148	25	Excellent
16/08/2021	315	21	Good
09/08/2021	10	9	Excellent
03/08/2021	20	18	Excellent
26/07/2021	10	10	Excellent
19/07/2021	20	40	Excellent
12/07/2021	<10	4	Excellent
05/07/2021	<10	2	Excellent
28/06/2021	30	4	Excellent
21/06/2021	<10	2	Excellent
14/06/2021	<10	2	Excellent
08/06/2021	10	14	Excellent
01/06/2021	10	2	Excellent
24/05/2021	10	2	Excellent

Silverstrand Beach Bathing Water Results 2021

Sample Date	E.coli Result	Intestinal Enterococci Result	Water Quality
06/09/2021	74	26	Excellent
23/08/2021	<10	4	Excellent
09/08/2021	31	30	Excellent
26/07/2021	10	17	Excellent
12/07/2021	52	24	Excellent
28/06/2021	<10	8	Excellent
14/06/2021	20	4	Excellent
01/06/2021	31	27	Excellent
24/05/2021	<10	2	Excellent

Salthill Beach Bathing Water Results 2021

Sample Date	E.coli Result	Intestinal Enterococci Result	Water Quality
06/09/2021	20	8	Excellent
23/08/2021	<10	4	Excellent
09/08/2021	10	<10	Excellent
26/07/2021	31	10	Excellent
12/07/2021	<10	4	Excellent
28/06/2021	<10	2	Excellent
14/06/2021	<10	3	Excellent
01/06/2021	<10	2	Excellent
24/05/2021	<10	2	Excellent