Annual Environmental Report

2020

Limerick

D0013-01

CONTENTS

7 APPENDIX

7.1 AMBIENT MONITORING SUMMARY

Rev 1 Note: Section 4.1.1 Question 1 answer change to "Unknown". Aproved 12/07/2021

1 EXECUTIVE SUMMARY AND INTRODUCTION TO THE 2020 AER

This Annual Environmental Report has been prepared for D0013-01, Limerick, in Limerick 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)

- Limerick WWTP - 2020 with a Plant Capacity PE of 186233, 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
TPEFF1800D0013SW001	Limerick WWTP - 2020	Treated	Compliant	N/A

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 LIMERICK WWTP - 2020 - TREATED DISCHARGE

2.1.1 INFLUENT MONITORING SUMMARY - LIMERICK 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
COD-Cr mg/l	219	1900	330.12
Total Phosphorus (as P) mg/l	213	32.5	5.8
Suspended Solids mg/l	219	1032	190.69
BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l	124	177	82.61
Total Nitrogen mg/l	214	82.8	24.03
Hydraulic Capacity	N/A	119233	53146

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’.

2.1.2 EFFLUENT MONITORING SUMMARY - TPEFF1800D0013SW001

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	215	N/A	N/A	35.55	Pass
Suspended Solids mg/l	35	87.5	N/A	215	5	N/A	12.59	Pass
BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l	25	50	N/A	132	N/A	N/A	4.72	Pass
pH pH units	9	9	N/A	215	N/A	N/A	7.42	Pass
ortho-Phosphate (as P) - unspecified mg/l	6.5	7.8	N/A	122	N/A	N/A	1.05	Pass
Ammonia-Total (as NH3) mg/l	N/A	N/A	N/A	215	N/A	N/A	7.31	
Ammonia-Total (as N) mg/l	N/A	N/A	N/A	215	N/A	N/A	6.02	
Nitrate (as N) mg/l	N/A	N/A	N/A	117	N/A	N/A	7.01	
Kjeldahl Nitrogen mg/l	N/A	N/A	N/A	157	N/A	N/A	10.04	

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)
Total Phosphorus (as P) mg/l	N/A	N/A	N/A	210	N/A	N/A	1.65	
Temperature °C	N/A	N/A	N/A	214	N/A	N/A	11.35	
Nitrite (as N) mg/l	N/A	N/A	N/A	118	N/A	N/A	0.19	
Conductivity @25°C µS/cm	N/A	N/A	N/A	138	N/A	N/A	882.72	
Total Nitrogen mg/l	N/A	N/A	N/A	210	N/A	N/A	15.57	

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):

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 TPEFF1800D0013SW001

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	156373, 156661	TW36004129SN1002	No	No	No	No	Good
Downstream	153107, 156009	TW36004129SN1001	No	No	No	No	Good

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 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 - LIMERICK WWTP - 2020

2.1.4.1 Treatment Efficiency Report - Limerick 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)
COD	6016894	708766	88

Parameter	Influent mass loading (kg/year)	Effluent mass emission (kg/year)	Efficiency (% reduction of influent load)
TN	441570	312725	29
SS	3475562	251004	93
TP	106659	33180	69
cBOD	1525498	96331	94

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

2.1.4.2 Treatment Capacity Report Summary - Limerick 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.

Limerick WWTP - 2020	
Peak Hydraulic Capacity (m^3/day) - As Constructed	88500
DWF to the Treatment Plant (m^3/day)	29500
Current Hydraulic Loading - annual max (m^3/day)	119233
Average Hydraulic loading to the Treatment Plant (m^3/day)	53146
Organic Capacity (PE) - As Constructed	186233
Organic Capacity (PE) - Collected Load (peak week)[Note1]	110100
Organic Capacity (PE) - Remaining	76133
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 - LIMERICK 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)
Waterworks Sludge	58266	Weight (Tonnes)	258960	0.3	Yes	Yes	Yes
Domestic /Septic Tank Sludge	38397	Volume (m3)	170653	0.19	Yes	No	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
18	Blocked Sewer	0	18

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	Inadequate Infrastructure	1	Yes	Yes
Spillage	Shock load to the WWTP	1	No	No
Spillage	Adverse Weather	1	No	Yes

Incident Type	Cause	No. of incident occurrences	Recurring (Y/N)	Closed (Y/N)
Spillage	Adverse Weather	1	No	Yes
Uncontrolled release	Shock load to the WWTP	1	No	No
Spillage	Blocked Sewer	1	No	Yes
Uncontrolled release	Plant or equipment breakdown at WWTP	1	No	No
Spillage	Broken Sewer Pipe	1	No	No

3.2.2 SUMMARY OF OVERALL INCIDENTS

Question	Answer
Number of Incidents in 2020	8
Number of Incidents reported to the EPA via EDEN in 2020	8
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
DP1	155435, 156125	Yes	Low	Not yet Assessed	Unknown	2708639	Monitored
SWO1	155388, 156260	No	Low	Meeting	Unknown	Unknown	Monitored
TBC	166112, 162876	No	Low	Meeting	Unknown	Unknown	Monitored
TBC	166089, 162871	No	Medium	Meeting	Unknown	Unknown	Monitored
TBC	156298, 154842	No	Low	Meeting	Unknown	Unknown	Monitored
TBC	156298, 154842	No	Low	Meeting	Unknown	Unknown	Monitored

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
TBC	159289, 158980	No	Low	Not yet Assessed	Unknown	Unknown	Monitored
TBC	159170, 158860	No	Low	Meeting	Unknown	Unknown	Monitored
TBC	157315, 154929	No	Low	Meeting	Unknown	Unknown	Monitored
TBC	156298, 154842	No	Low	Meeting	Unknown	Unknown	Monitored
TBC	158261, 157709	No	Low	Meeting	Unknown	Unknown	Monitored
TBC	157317, 154930	No	Low	Not yet Assessed	Unknown	Unknown	Monitored
TBC	157331, 156992	No	Low	Not yet Assessed	Unknown	Unknown	Monitored
TBC	158259, 157695	No	Low	Not yet Assessed	Unknown	Unknown	Monitored
TBC	157178, 158554	No	Low	Not yet Assessed	Unknown	Unknown	Monitored
TBC	158232, 157938	No	Low	Not yet Assessed	Unknown	Unknown	Monitored

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
TBC	162358, 158683	No	Unknown	Not yet Assessed	Unknown	Unknown	Monitored
TBC	157486, 157425	No	Low	Not yet Assessed	Unknown	Unknown	Monitored
TBC	156604, 154943	No	Low	Not yet Assessed	Unknown	Unknown	Monitored
TBC	160587, 158561	No	Medium	Meeting	Unknown	Unknown	Monitored
TBC	160587, 158561	No	Medium	Meeting	Unknown	Unknown	Monitored
TBC	TBC, TBC	No	Low	Not yet Assessed	Unknown	Unknown	Monitored
TBC	TBC, TBC	No	Low	Not yet Assessed	Unknown	Unknown	Not Monitored
TBC	TBC, TBC	No	Unknown	Not yet Assessed	Unknown	Unknown	Not Monitored
TBC	164263, 157913	No	Low	Not yet Assessed	Unknown	Unknown	Monitored
TBC	166137, 161665	No	Low	Meeting	Unknown	Unknown	Monitored

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
TBC	158064, 160202	No	Low	Meeting	Unknown	Unknown	Monitored
TBC	157681, 157800	No	Low	Meeting	Unknown	Unknown	Monitored
TBC	152531, 150990	No	Low	Meeting	Unknown	Unknown	Monitored
TBC	150651, 149289	No	Low	Meeting	Unknown	Unknown	Unknown
TBC	159669, 155480	No	Low	Meeting	Unknown	Unknown	Unknown
TBC	157973, 160375	No	Low	Meeting	Unknown	Unknown	Unknown

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?	No
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
D0013-SIP:01	Rehabilitation of sewerage system	C	31/12/2020	No	At Planning Stage		Drainage Area Plan Investigation Study to be completed. Completion date 2024+
D0013-SIP:02	Westbury pumping station	C	01/08/2009	Yes	Works Completed		

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	2014	No	
Toxicity of Final Effluent	Yes	2014	No	

5.1 PRIORITY SUBSTANCES ASSESSMENT

The Priority Substances Assessment Report has been included in the AER 2014

5.2 TOXICITY OF FINAL EFFLUENT

The Toxicity of Final Effluent Report has been included in the AER 2014

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	Yes

I certify that the information given in this Annual Environmental Report is truthful, accurate and complete:

Signed: Date: 06/05/2021

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

			Receiving Waters Designation (Yes/No)				Yes	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	156400, 156662	TW36004129SN1002					Good	1.240	0.020	0.000
Downstream Monitoring Point	168323, 149767	TW36004129SN1001	No	No	No	No	Good	1.190	0.020	0.000
Difference								*-0.050*	*0.000*	*0.000*
EQS								2.200	0.045	0.065
% of EQS								-2.273%	0.000%	0.000%