Annual Environmental Report

2022

Lismore

D0176-01

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1 EXECUTIVE SUMMARY AND INTRODUCTION TO THE 2022 AER

This Annual Environmental Report has been prepared for D0176-01, Lismore, 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.

There was no major capital or operational changes undertaken

1.2 TREATMENT SUMMARY

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

- Lismore WWTP with a Plant Capacity PE of 3000, 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
TPEFF3100D0176SW001	Lismore 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 LISMORE WWTP - TREATED DISCHARGE

2.1.1 INFLUENT MONITORING SUMMARY - LISMORE 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
BOD, 5 days with Inhibition (Carbonaceo mg/l	12	596	172
Suspended Solids mg/l	12	308	133
Total Phosphorus (as P) mg/l	12	8.57	4.14
COD-Cr mg/l	12	1101	369
Total Nitrogen mg/l	12	69	31
Hydraulic Capacity	N/A	2513	651

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 - TPEFF3100D0176SW001

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	12	N/A	N/A	16	Pass
Suspended Solids mg/l	35	87.5	N/A	12	N/A	N/A	6.61	Pass
BOD, 5 days with Inhibition (Carbonaceo mg/l	20	40	N/A	12	N/A	N/A	3.78	Pass
pH pH units	9	9	N/A	11	N/A	N/A	7.75	Pass
Ammonia-Total (as N) mg/l	5	6	N/A	12	N/A	N/A	0.071	Pass
ortho-Phosphate (as P) - unspecified mg/l	3	3.6	N/A	12	N/A	N/A	1.12	Pass
Total Phosphorus (as P) mg/l	N/A	N/A	N/A	12	N/A	N/A	1.38	
Total Oxidised Nitrogen (as N) mg/l	N/A	N/A	N/A	1	N/A	N/A	9.60	

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	9.81	
Nitrite (as N) mg/l	N/A	N/A	N/A	2	N/A	N/A	0.048	
Nitrate (as N) mg/l	N/A	N/A	N/A	2	N/A	N/A	10	

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 TPEFF3100D0176SW001

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	204807, 98767	RS18B022600	No	No	No	No	Moderate
Downstream	206333, 98824	RS18B022700	No	No	No	No	Moderate

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	RS18B022600	1.14	RS18B022700	1.46	1.50	21.6
Ammonia-Total (as N) mg/l	RS18B022600	0.021	RS18B022700	0.030	0.065	13.2
ortho-Phosphate (as P) - unspecified mg/l	RS18B022600	0.027	RS18B022700	0.036	0.035	26.8
Cadmium - unspecified µg/l	RS18B022600	0.035	RS18B022700	N/A	N/A	
Copper - unspecified µg/l	RS18B022600	1.51	RS18B022700	N/A	N/A	
Chromium - unspecified µg/l	RS18B022600	0.816	RS18B022700	N/A	N/A	
Dissolved Organic Carbon mg/l	RS18B022600	11	RS18B022700	N/A	N/A	
Chloride mg/l	RS18B022600	30	RS18B022700	28	N/A	

Parameter Name	Upstream Monitoring Point Location	Upstream Monitoring Point Annual Mean	Downstream Monitoring Point Location	Downstream Monitoring Point Annual Mean	EQS	% of EQS
Conductivity @25°C µS/cm	RS18B022600	365	RS18B022700	314	N/A	
Iron - unspecified µg/l	RS18B022600	220	RS18B022700	N/A	N/A	
Calcium - unspecified mg/l	RS18B022600	42	RS18B022700	N/A	N/A	
Barium - unspecified µg/l	RS18B022600	13	RS18B022700	N/A	N/A	
Temperature °C	RS18B022600	13	RS18B022700	13	N/A	
Nitrite (as N) µg/l	RS18B022600	6.26	RS18B022700	6.23	N/A	
Thallium - unspecified µg/l	RS18B022600	0.141	RS18B022700	N/A	N/A	
Molybdenum - unspecified µg/l	RS18B022600	0.707	RS18B022700	N/A	N/A	
Manganese - unspecified µg/l	RS18B022600	32	RS18B022700	N/A	N/A	
Total Oxidised Nitrogen (as N) mg/l	RS18B022600	3.08	RS18B022700	2.66	N/A	
Nickel - unspecified µg/l	RS18B022600	1.23	RS18B022700	N/A	N/A	
Total Hardness (as CaCO3) mg/l	RS18B022600	138	RS18B022700	115	N/A	

Parameter Name	Upstream Monitoring Point Location	Upstream Monitoring Point Annual Mean	Downstream Monitoring Point Location	Downstream Monitoring Point Annual Mean	EQS	% of EQS
Lead - unspecified µg/l	RS18B022600	0.424	RS18B022700	N/A	N/A	
Vanadium - unspecified µg/l	RS18B022600	0.752	RS18B022700	N/A	N/A	
Zinc - unspecified µg/l	RS18B022600	7.02	RS18B022700	N/A	N/A	
Nitrate (as N) mg/l	RS18B022600	3.07	RS18B022700	2.66	N/A	
Total Phosphorus (as P) mg/l	RS18B022600	0.054	RS18B022700	N/A	N/A	
Arsenic - unspecified µg/l	RS18B022600	0.707	RS18B022700	N/A	N/A	
Dissolved Oxygen mg/l	RS18B022600	11	RS18B022700	11	N/A	
Alkalinity-total (as CaCO3) mg/l	RS18B022600	122	RS18B022700	98	N/A	
Dissolved Oxygen % Saturation	RS18B022600	107	RS18B022700	109	N/A	
Aluminium - unspecified µg/l	RS18B022600	72	RS18B022700	N/A	N/A	
Antimony - unspecified µg/l	RS18B022600	0.707	RS18B022700	N/A	N/A	
Boron - unspecified µg/l	RS18B022600	9.75	RS18B022700	N/A	N/A	

Parameter Name	Upstream Monitoring Point Location	Upstream Monitoring Point Annual Mean	Downstream Monitoring Point Location	Downstream Monitoring Point Annual Mean	EQS	% of EQS
Beryllium - unspecified µg/l	RS18B022600	0.707	RS18B022700	N/A	N/A	
Cobalt - unspecified µg/l	RS18B022600	0.707	RS18B022700	N/A	N/A	
Selenium - unspecified µg/l	RS18B022600	0.707	RS18B022700	N/A	N/A	
Sodium - unspecified mg/l	RS18B022600	17	RS18B022700	N/A	N/A	
pH pH units	RS18B022600	7.97	RS18B022700	8.00	N/A	
Total Nitrogen mg/l	RS18B022600	3.33	RS18B022700	N/A	N/A	
Suspended Solids mg/l	RS18B022600	14	RS18B022700	6.93	N/A	
Strontium - unfiltered µg/l	RS18B022600	62	RS18B022700	N/A	N/A	
Potassium - unspecified mg/l	RS18B022600	3.84	RS18B022700	N/A	N/A	
Magnesium - unspecified mg/l	RS18B022600	5.80	RS18B022700	N/A	N/A	
Mercury - unspecified µg/l	RS18B022600	0.014	RS18B022700	N/A	N/A	
Uranium - unfiltered µg/l	RS18B022600	0.392	RS18B022700	N/A	N/A	

Parameter Name	Upstream Monitoring Point Location	Upstream Monitoring Point Annual Mean	Downstream Monitoring Point Location	Downstream Monitoring Point Annual Mean	EQS	% of EQS
True Colour mg/litre Pt Co	RS18B022600	34	RS18B022700	43	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.

Based on ambient monitoring results a deterioration in Ammonia, Ortho phosphate and BOD., 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 not have an observable negative impact on the Water Framework Directive status.

2.1.4 OPERATIONAL PERFORMANCE SUMMARY - LISMORE WWTP

2.1.4.1 Treatment Efficiency Report - Lismore 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	911	300	67
TN	6911	2133	69

Parameter	Influent mass loading (kg/year)	Effluent mass emission (kg/year)	Efficiency (% reduction of influent load)
SS	29203	1437	95
COD	81165	3470	96
cBOD	37921	823	98

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

2.1.4.2 Treatment Capacity Report Summary - Lismore 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.

Lismore WWTP	
Peak Hydraulic Capacity (m^3/day) - As Constructed	2070
DWF to the Treatment Plant (m^3/day)	690
Current Hydraulic Loading - annual max (m^3/day)	2513
Average Hydraulic loading to the Treatment Plant (m^3/day)	651
Organic Capacity (PE) - As Constructed	3000
Organic Capacity (PE) - Collected Load (peak week)[Note1]	2227
Organic Capacity (PE) - Remaining	773
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 - LISMORE 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
1	Discharge to waters	1	0

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)
There were no reportable incidents in 2022.				

3.2.2 SUMMARY OF OVERALL INCIDENTS

Question	Answer
Number of Incidents in 2022	0
Number of Incidents reported to the EPA via EDEN in 2022	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 2022 (No. of events)	Total volume discharged in 2022 (m3)	Monitoring Status
SW002	204857,98757	Yes	Low Significance	Meeting Criteria	Unknown	239520	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)?	239520
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?	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
D0176-SIP:01	Lismore Sewerage Scheme Waste Water Treatment Plant upgrade	C	31/03/2014	Yes	Works Completed		
D0176-SIP:02	Provision of storm water holding tank and upgrade of storm water overflow (associated with SW002) to comply with the DoECLG 'Procedures and Criteria in relation to Storm Water Overflows, 1995'.	C	31/03/2014	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
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	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

There are no Appendices included