Annual Environmental Report

2019

Lixnaw

D0462-01

CONTENTS

7.1 AMBIENT MONITORING SUMMARY

1 EXECUTIVE SUMMARY AND INTRODUCTION TO THE 2019 AER

This Annual Environmental Report has been prepared for D0462-01, Lixnaw, in Kerry 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.

The Construction of the New Integrated Constructed Wetland (ICW) commenced in September 2019. It is currently anticipated that the ICW with a design PE of 1200 will be completed by September 2020

1.2 TREATMENT SUMMARY

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

- LIXNAW WWTP with a Plant Capacity PE of 300, the treatment type is 1 - Primary 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
TPEFF1300D0462SW001	LIXNAW WWTP	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 LIXNAW WWTP - TREATED DISCHARGE

2.1.1 INFLUENT MONITORING SUMMARY - LIXNAW 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 (Carbonaceous BOD) mg/l	6	330	148.83
Total Nitrogen mg/l	1	23.05	23.05
Suspended Solids mg/l	6	305	111.8
COD-Cr mg/l	6	720	347.39
Hydraulic Capacity	N/A	350	180

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 tretament 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 - TPEFF1300D0462SW001

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)
Visual Inspection Descriptive	N/A	N/A	N/A	6	N/A	N/A	N/A	
pH pH units	N/A	N/A	N/A	6	N/A	N/A	7.34	
Ammonia-Total (as N) mg/l	N/A	N/A	N/A	6	N/A	N/A	34.33	
Suspended Solids mg/l	N/A	N/A	50	6	N/A	N/A	68.65	Pass
Total Nitrogen mg/l	N/A	N/A	N/A	1	N/A	N/A	20.57	
ortho-Phosphate (as P) - unspecified mg/l	N/A	N/A	N/A	6	N/A	N/A	3.89	
COD-Cr mg/l	N/A	N/A	N/A	6	N/A	N/A	296.09	
BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l	N/A	N/A	20	6	N/A	N/A	119.15	Pass
Conductivity 20 C µS/cm	N/A	N/A	N/A	5	N/A	N/A	859.51	

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 TPEFF1300D0462SW001

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	88997, 129204	RS23B030570	No	No	No	No	Unassigned
Downstream	88700, 132406	RS23B030700	No	No	No	No	Unassigned

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	RS23B030570	2.25	RS23B030700	2.169	1.5	-5.4
Ammonia-Total (as N) mg/l	RS23B030570	0.143	RS23B030700	0.144	0.065	0.8
ortho-Phosphate (as P) - unspecified mg/l	RS23B030570	0.062	RS23B030700	0.05	0.035	-34
Dissolved Oxygen mg/l	RS23B030570	9.2	RS23B030700	9.82		
Conductivity 20 C µS/cm	RS23B030570	1291.5	RS23B030700	3096.25		
Dissolved Oxygen % Saturation	RS23B030570	72.86	RS23B030700	87.344		
pH pH units	RS23B030570	7.44	RS23B030700	7.467		
Total Nitrogen mg/l	RS23B030570	4.53	RS23B030700	4.71		
Suspended Solids mg/l	RS23B030570	10	RS23B030700	10		
Temperature °C	RS23B030570	8.8	RS23B030700	11.24		

Significance of Results:

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

The ambient monitoring results does not 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 - LIXNAW WWTP

2.1.4.1 Treatment Efficiency Report - LIXNAW 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	N/A	N/A	N/A
TN	2945	2628	11
SS	7543	4632	39
cBOD	10041	8039	20
COD	23438	19977	15

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

2.1.4.2 Treatment Capacity Report Summary - LIXNAW 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.

LIXNAW WWTP	
Peak Hydraulic Capacity (m³/day) - As Constructed	202.5
DWF to the Treatment Plant (m³/day)	68

LIXNAW WWTP	
Current Hydraulic Loading - annual max (m^3/day)	350
Average Hydraulic loading to the Treatment Plant (m^3/day)	180
Organic Capacity (PE) - As Constructed	300
Organic Capacity (PE) - Collected Load (peak week)[Note1]	828
Organic Capacity (PE) - Remaining	0
Will the capacity be exceeded in the next three years? (Yes/No)	Yes

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 - LIXNAW 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 is included below.

Number of Complaints	Nature of Complaint	Number Open Complaints	Number Closed Complaints
2	Blocked Sewer	0	2

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)
Specified % Reduction Value not achieved	WWTP upgrade required to meet ELV	1	Yes	No

3.2.2 SUMMARY OF OVERALL INCIDENTS

Question	Answer
Number of Incidents in 2019	1
Number of Incidents reported to the EPA via EDEN in 2019	1
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 2019 (No. of events)	Total volume discharged in 2019 (m3)	Monitoring Status
SW002	89089.18, 129272.2	Yes	Low	Meeting	Unknown	Unknown	Not Monitored
TBC	89920, 129593	No	Low	Not Meeting	Unknown	Unknown	Not Monitored

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
D0462-SIP:01	Upgrade WWTP, as necessary, to comply with ELVs specified in Schedule A: Discharges & Discharge Monitoring, of this licence.	C	31/12/2019	No	Work ongoing on-site		

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	2015	No	

5.1 PRIORITY SUBSTANCES ASSESSMENT

The Priority Substances Assessment Report has been included in the AER 2015

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?	No
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: 13/03/2020

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

Ambient Lixnaw WWTP 2019

Sampling Point	SP EPA Code	Sample No.	Sampled Date	Sampled Time	Sampled By	Sample Type	Comments	Sample Status	006_PH pH	007A_CONDUCTIVITY20C Conductivity	013C_BOD B.O.D.	022K_AMMONIA Ammonia	025_PHOSPHATE_SRP Phosphorus (MRP)	035_DO_PCT_SAT Dissolved Oxygen	082_VIS_INSPECTION Visual Inspection
									4.5		0	0	0	80.0	
									9.0		5	0.1	0.05	120.0	
									PH	*USCM*	*BOD*	*MGLN*	*MGL*	*PERCENT_SA*	*NONE*
Brick us of Lixnaw wwtp_LIXNAW_US_DISCHARGE_PT	RS23B030570	2019/0030	08-Jan-19	10:50	EX_GC	RIVER	DO 8.73, 10.7 0C, 76.6% sat	Authorised	7.7	461	<1.3	0.17	0.06	76.6	Clear
Brick us of Lixnaw wwtp_LIXNAW_US_DISCHARGE_PT	RS23B030570	2019/1257	09-May-19	9:30	EX_GC	RIVER	High colour, DO 9.5, Temp 12.4 0C, % sat 89.6%	Authorised	7.9	2870	3.2	<0.05	0.05	89.6	High Colour
Brick us of Lixnaw wwtp_LIXNAW_US_DISCHARGE_PT	RS23B030570	2019/1839	09-Jul-19	9:45	EX_GC	RIVER	Clear, DO 5.20, Temp 19.7, % sat 55.8	Authorised	7.2	1530	3.9	0.18	0.02	55.8	Clear
Brick us of Lixnaw wwtp_LIXNAW_US_DISCHARGE_PT	RS23B030570	2019/2508	04-Sep-19	8:15	EX_GC	RIVER		Not Authorised	7.0	305	1.8	0.16	0.11	65.9	
Brick brg Near Sleveen (Ballinagare brg)_LIXNAW_DS_DISCHARGE_PT	RS23B030700	2019/0031	08-Jan-19	11:05	EX_GC	RIVER	DO 8.68, 10.4 0C, 75.7% sat	Authorised	7.7	1783	<1.3	0.11	0.04	75.7	Clear
Brick brg Near Sleveen (Ballinagare brg)_LIXNAW_DS_DISCHARGE_PT	RS23B030700	2019/1258	09-May-19	9:15	EX_GC	RIVER	High colour, DO 10.09, Temp 13.5 0C, % sat 97.6%	Authorised	8.0	2360	1.9	0.32	0.03	97.6	High Colour
Brick brg Near Sleveen (Ballinagare brg)_LIXNAW_DS_DISCHARGE_PT	RS23B030700	2019/1840	09-Jul-19	9:20	EX_GC	RIVER	Clear, DO 9.16, Temp 20.9, % sat 101.6	Authorised	7.2	7740	4.9	0.19	0.05	101.6	Clear
Brick brg Near Sleveen (Ballinagare brg)_LIXNAW_DS_DISCHARGE_PT	RS23B030700	2019/2509	04-Sep-19	8:10	EX_GC	RIVER		Not Authorised	7.0	502	2.5	0.16	0.12	59.8	

			Receiving Waters Designation (Yes/No)					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							Unassigned	2.550	0.060	0.140
Downstream Monitoring Point			No	No	No	No	Unassigned	2.650	0.060	0.195
Difference								*0.100*	*0.000*	*0.055*
EQS								1.500	0.035	0.065
% of EQS								6.667%	0.000%	84.615%