Annual Environmental Report

2021

Ballaghaderreen

D0123-01

CONTENTS

7 APPENDIX

7.1 AMBIENT MONITORING SUMMARY

1 EXECUTIVE SUMMARY AND INTRODUCTION TO THE 2021 AER

This Annual Environmental Report has been prepared for D0123-01, Ballaghaderreen, 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.

There are no Specified Improvement Programmes for this Agglomeration.

1.2 TREATMENT SUMMARY

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

- Ballaghaderreen WWTP with a Plant Capacity PE of 2500, 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
TPEFF2600D0123SW001	Ballaghaderreen WWTP	Treated	Non-Compliant	Ammonia-Total (as N) mg/l Suspended Solids mg/l

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 BALLAGHADERREEN WWTP - TREATED DISCHARGE

2.1.1 INFLUENT MONITORING SUMMARY - BALLAGHADERREEN 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
Ammonia-Total (as N) mg/l	2	5.09	4.34
COD-Cr mg/l	12	557	135
BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l	12	239	58
ortho-Phosphate (as P) - unspecified mg/l	2	0.360	0.341
Suspended Solids mg/l	12	228	49
Hydraulic Capacity	N/A	3020	1354

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 - TPEFF2600D0123SW001

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	30	Pass
Suspended Solids mg/l	35	88	N/A	12	1	1	31	Fail
BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l	20	40	N/A	12	N/A	N/A	3.06	Pass
pH units	9.00	9.00	N/A	12	N/A	N/A	7.38	Pass
Ammonia-Total (as N) mg/l	2.00	2.40	N/A	12	3	3	3.52	Fail
ortho-Phosphate (as P) - unspecified mg/l	0.600	0.720	N/A	12	N/A	N/A	0.028	Pass

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):

Refer to Incident Section of Report.

Significance of Results:

The WWTP is non compliant with the ELV's set out in the Wastewater Discharge Licence.

2.1.3 AMBIENT MONITORING SUMMARY FOR THE TREATMENT PLANT DISCHARGE TPEFF2600D0123SW001

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	163371, 294363	RS26L030350	No	No	No	No	Good
Downstream	164213, 295375	RS26L030380	No	No	No	No	Good

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	RS26L030350	1.92	RS26L030380	1.77	1.50	-9.9
Ammonia-Total (as N) mg/l	RS26L030350	0.047	RS26L030380	0.061	0.065	21.3

Parameter Name	Upstream Monitoring Point Location	Upstream Monitoring Point Annual Mean	Downstream Monitoring Point Location	Downstream Monitoring Point Annual Mean	EQS	% of EQS
ortho-Phosphate (as P) - unspecified mg/l	RS26L030350	0.013	RS26L030380	0.013	0.035	-0.1
Dissolved Oxygen mg/l	RS26L030350	24	RS26L030380	24	N/A	
Dissolved Oxygen % Saturation	RS26L030350	82	RS26L030380	82	N/A	
Suspended Solids mg/l	RS26L030350	7.12	RS26L030380	7.92	N/A	
pH units	RS26L030350	7.79	RS26L030380	7.82	N/A	
Temperature °C	RS26L030350	13	RS26L030380	13	N/A	

Significance of Results:

The WWTP discharge was not compliant with the ELV's set in the wastewater discharge licence for the following: Suspended Solids mg/l, Ammonia-Total (as N) mg/l.

The ambient monitoring results do not meet the required EQS at the upstream and the downstream monitoring locations. 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 - BALLAGHADERREEN WWTP

2.1.4.1 Treatment Efficiency Report - Ballaghaderreen 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)
SS	25897	20493	21
COD	71125	19930	72
TP	N/A	N/A	N/A
cBOD	30424	2050	93
TN	N/A	N/A	N/A

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

2.1.4.2 Treatment Capacity Report Summary - Ballaghaderreen 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.

Ballaghaderreen WWTP	
Peak Hydraulic Capacity (m^3/day) - As Constructed	4734
DWF to the Treatment Plant (m^3/day)	1578
Current Hydraulic Loading - annual max (m^3/day)	3020
Average Hydraulic loading to the Treatment Plant (m^3/day)	1354
Organic Capacity (PE) - As Constructed	2500
Organic Capacity (PE) - Collected Load (peak week)[Note1]	2904
Organic Capacity (PE) - Remaining	0

Ballaghaderreen WWTP	
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 - BALLAGHADERREEN 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)	10261	Volume (m3)		2.08	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
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)
Abatement Equipment offline	Plant or equipment breakdown at WWTP	1	No	Yes
Abatement Equipment offline	Plant or equipment breakdown at WWTP	1	No	No
Breach of ELV	Plant or equipment maintenance at WWTP	1	Yes	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
SW6	162805, 294682	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)?	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?	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
There are no Specified Improvement Programmes for this Agglomeration.							

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	2016	No
Toxicity/Leachate Management	Yes	2017	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?	Yes
List reason e.g. additional SWO identified	Increase in collected loading
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	No

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

Signed: Date: 13/04/2022

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

			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	163380, 294368	IE_SH_26L030400					Good	1.917	0.015	0.047
Downstream Monitoring Point	164214, 295375	IE_SH_26L030400	No	No	No	No	Good	2.000	0.013	0.100
EQS								2.600	0.075	0.140
% of EQS								3.192%	-2.400%	37.857%

D0123-01 Ballaghaderreen Agglomeration:-Ambient Monitoring Upstream 2021 - River Lung – (26L03-0350 Br. West of Banada)								
Sample Type	Date	code	Ammonia (mg/l)	BOD (mg/l)	Dissolved Oxygen (% Saturation)	pH (unit)	Temperature (deg C)	Ortho-p (PO4-P) (mg/l)
Upstream	21/01/2021	21440196	0.035	1.4	79.1	7.6	4.4	0.014
Upstream	31/03/2021	21441188	0.058	1.9	90.6	8.13	9.4	0.014
Upstream	26/05/2021	21442063	0.022	1.2	94.1	7.68	10.6	0.01
Upstream	21/07/2021	21442887	0.031	3.5	125	7.4	8.0	<0.006
Upstream	19/08/2021	21443362	0.068	1.9	95.3	7.78	15.1	0.024
Upstream	12/10/2021	21444323	0.07	1.6	9.4	7.5	14.7	0.012
Upstream								
Upstream								
Upstream								
Upstream								
Upstream								
Upstream								
Ambient Monitoring Result (Mean)			0.047	1.917	82.3	7.682	10.372	0.015
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)			0.07	3.10	117.6	8.04	16.07	0.02
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	Fail	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.

D0123-01 Ballaghaderreen Agglomeration:-Ambient Monitoring Downstream 2021 - River Lung – (26L03-0380 – Br. On Ballaghaderreen Bypass)Agreed with EPA								
Sample Type	**Date**	**code**	**Ammonia (mg/l)**	**BOD (mg/l)**	**Dissolved Oxygen (% Saturation)**	**pH (unit)**	**Temperature (deg C)**	**Ortho-p (PO4-P) (mg/l)**
Downstream	21/01/2021	21440197	0.031	1.5	76.1	7.6	4.2	0.016
Downstream	31/03/2021	21441189	0.198	3.2	92.1	8.12	9.6	0.015
Downstream	26/05/2021	21442064	0.038	1.5	93.8	7.72	10.2	0.015
Downstream	21/07/2021	21442888	< 0.02	2.1	127.8	8.14	23.9	0.009
Downstream	19/08/2021	21443363	0.029	<1	95.6	7.83	15.6	0.008
Downstream	12/10/2021	21444324	0.057	1.6	9.4	7.5	14.1	0.015
Downstream								
Downstream								
Downstream								
Downstream								
Downstream								
Downstream								
Ambient Monitoring Result (Mean)			0.100	2.000	82.5	7.82	12.93	0.013
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)			0.2	3	119.75	8.135	21.825	0.016
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)			Fail	Fail	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.