Annual Environmental Report

2019

Ballaghaderreen

D0123-01

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1 EXECUTIVE SUMMARY AND INTRODUCTION TO THE 2019 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 were no major capital or operational changes undertaken.

1.2 TREATMENT SUMMARY

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

- Ballaghaderreen Wastewater Treatment Works 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 WASTEWATER TREATMENT WORKS WWTP	Treated	Non-Compliant	Ammonia-Total (as N) mg/l

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 BALLAGHADERREEN WASTEWATER TREATMENT WORKS WWTP - TREATED DISCHARGE

2.1.1 INFLUENT MONITORING SUMMARY - BALLAGHADERREEN WASTEWATER TREATMENT WORKS 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	13	213	103.58
Suspended Solids mg/l	13	654	179.01
COD-Cr mg/l	13	580	288.63
Hydraulic Capacity	N/A	2407	1429

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’.

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 with Condition 2 Interpretation included	Annual Mean	Overall Compliance (Pass/Fail)
COD-Cr mg/l	125	250	N/A	13	0	0	20.64	Pass
Suspended Solids mg/l	35	87.5	N/A	13	0	0	7.93	Pass
BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l	20	40	N/A	13	0	0	1.65	Pass
pH pH units	9	9	N/A	13	0	0	7.1	Pass
Ammonia-Total (as N) mg/l	2	2.4	N/A	13	1	1	0.5	Fail
ortho-Phosphate (as P) - unspecified mg/l	0.6	0.72	N/A	13	0	0	0.03	Pass

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):

A shock load to the WWTP.

Significance of Results:

The WWTP is non-compliant with the ELV's set in the wastewater discharge licence. The impact on receiving waters is assessed further in Section 2.

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 Status
Upstream	163371, 294363	RS26L030350	No	No	No	No	Good
Downstream	163364, 294728	RS26L030360	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 not 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 BOD and Ammonia concentrations downstream of the effluent discharge is noted.

A deterioration in water quality has been identified; however, it is not known if it is 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 - BALLAGHADERREEN WASTEWATER TREATMENT WORKS WWTP

2.1.4.1 Treatment Efficiency Report - BALLAGHADERREEN WASTEWATER TREATMENT WORKS 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
cBOD	57189	911	98
COD	159363	11394	93
TN	N/A	N/A	N/A
SS	98835	4376	96

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

2.1.4.2 Treatment Capacity Report Summary - BALLAGHADERREEN WASTEWATER TREATMENT WORKS 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 WASTEWATER TREATMENT WORKS WWTP	
Peak Hydraulic Capacity (m^3/day) - As Constructed	4734
DWF to the Treatment Plant (m^3/day)	1578

BALLAGHADERREEN WASTEWATER TREATMENT WORKS WWTP	
Current Hydraulic Loading - annual max (m^3/day)	2407
Average Hydraulic loading to the Treatment Plant (m^3/day)	1429
Organic Capacity (PE) - As Constructed	2500
Organic Capacity (PE) - Collected Load (peak week)[Note1]	2858
Organic Capacity (PE) - Remaining	0
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 WASTEWATER TREATMENT WORKS 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)	11361	Volume (m^3)	185	2.2	Yes	Yes	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
There were no relevant environmental complaints in 2019.			

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	Shock load to the WWTP	1	No	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
SW6	163190, 294620	Yes	Low	Not Meeting	Unknown	Unknown	Not Monitored

SWO Summary	
How much sewage was discharged via SWOs in the agglomeration in the year (m^3)?	Unknown
Is each SWO identified as not meeting DoEHLG Guidance included in the Programme of Improvements?	Yes
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
There are no Specified Improvement Programmes for this Agglomeration.							

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 Improvement Programmes 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.

Licence Specific Report	Required by licence	Year included in AER	Included in this AER	Reference to relevant section of AER
Priority Substances Assessment	Yes	2016	No	
Toxicity/Leachate Management	Yes	2017	No	

5.1 PRIORITY SUBSTANCES ASSESSMENT

The Priority Substances Assessment Report has been included in the 2016 AER.

5.2 TOXICITY/LEACHATE MANAGEMENT

The Toxicity/Leachate Management Report has been included in the 2017 AER.

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?	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.	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	No

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

Signed: Date: 20/04/2020

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

			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	1.110	0.017	0.037
Downstream Monitoring Point	164214, 295375	IE_SH_26L030400	No	No	No	No	Good	1.120	0.014	0.045
EQS								1.500	0.035	0.065
% of EQS								-0.66%	8.57%	-12.31%

D0123-01 Ballaghaderreen Agglomeration:-Ambient Monitoring Upstream 2019 - 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	15/01/2019	19440179	0.074	1.3	96.4	7.56	8.3	0.009
Upstream	13/02/2019	19440495	0.03	1.0	96.6	7.37	10.4	0.013
Upstream	07/03/2019	19440811	0.022	1.3	89	7.33	6.2	0.01
Upstream	04/04/2019	19441156	0.041	1.2	98.4	7.63	9.1	0.007
Upstream	01/05/2019	19441414	0.02	1	111.3	7.51	12.2	0.006
Upstream	06/06/2019	19441867	0.035	1	86.7	7.08	11.4	0.06
Upstream	04/07/2019	19442283	0.022	1	114.3	7.88	18.0	0.006
Upstream	01/08/2019	19442664	0.051	1	112.6	7.66	17.4	0.029
Upstream	26/09/2019	19443533	0.059	1.3	93.8	7.21	13.5	0.012
Upstream	16/10/2019	19443972	0.02	1	86.7	6.87	10.8	0.018
Ambient Monitoring Result (Mean)			0.037	1.110	98.6	7.410	11.730	0.017
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	1.30	113.5	7.78	17.73	0.05
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	Good	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 2019 - 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	15/01/2019	19440180	0.114	1.3	96.2	7.66	8.3	0.009
Downstream	13/02/2019	19440496	0.033	1.1	97.5	7.42	10.4	0.012
Downstream	07/03/2019	19440812	0.02	1	83.8	7.33	6.3	0.012
Downstream	04/04/2019	19441157	0.07	1	98.6	7.75	8.6	0.009
Downstream	01/05/2019	19441415	0.02	1.0	106.2	7.61	12.3	0.01
Downstream	06/06/2019	19441868	0.04	1.5	89.2	7.13	11.3	0.029
Downstream	04/07/2019	19442284	0.027	1.0	117	7.97	18.2	0.006
Downstream	01/08/2019	19442665	0.047	1.0	112.1	7.71	17.6	0.012
Downstream	26/09/2019	19443534	0.054	1.2	94.8	7.28	13.6	0.017
Downstream	16/10/2019	19443973	0.02	1.1	88.5	6.87	10.8	0.02
Ambient Monitoring Result (Mean)			0.045	1.120	98.4	7.47	11.74	0.014
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)			0.0942	1.41	114.795	7.871	17.93	0.025
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	Good	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.