Annual Environmental Report

2018

Athenry

D0193-01

TABLE OF CONTENTS

1 EXECUTIVE SUMMARY AND INTRODUCTION TO THE 2018 AER

This Annual Environmental Report has been prepared for D0193-01, Athenry, in Galway in accordance with the requirements of the wastewater discharge licence for the agglomeration. Specified reports are included as an appendix to the AER as follows:

1.1 Licence specific reporting included in AER

Assessment / Report	Included in AER
No Licence Specific Reporting included in AER	NA

1.2 Treatment Type

The agglomeration is served by a wastewater treatment plant ATHENRY WWTP with a Plant Capacity PE of 6000. The treatment process includes the following:

1.2.1 ATHENRY WWTP

Treatment type	Yes / No	Details
Preliminary Treatment	Yes	Screening
Primary Treatment	No	
Secondary Treatment	Yes	Conventional Activated Sludge & Stahlermatic Aeration Wheels (SAW)
Nutrient Removal	Yes	Chemical Dosing for Phosphorus Removal
Tertiary Treatment	No	

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 2.2 Discharges from the agglomeration.

1.3 ELV Overview

1.3.1 ATHENRY WWTP

Compliance Status	
Were all parameters compliant for ATHENRY WWTP treatment plant	No
Where noncompliant see table 2.2.1 for details of parameters	

1.4 Sludge Removal

The amount of sludge removed from the wastewater treatment plant is shown below along with the transported destination of the sludge from the treatment plant.

Treatment Plant	Sludge type	Quantity	Unit	% Dry Solids	Destination
ATHENRY WWTP	Dried Sludge	35.58	Weight (Tonnes)	17.4	H&L Environmental Services Ltd., Derryville, Moyne, Thurles, Co.Tipperary.
ATHENRY WWTP	Liquid Sludge	262.8	Weight (Tonnes)	2.73	Tuam WWTP

Annual Statement of Measures

A Major Capital project for the WWTP upgrade and extension to 9500 PE is currently on-going on-site. The expected completion date is Q2 2019. The works are currently 90% complete.

2 MONITORING REPORTS SUMMARY

2.1 Summary report on monthly influent monitoring

A summary of influent monitoring for the treatment plant is presented in below. This monitoring is primarily undertaken in order to determine the overall efficiency of the plant in removing pollutants from the raw wastewater.

2.1.1 Influent Monitoring Summary - ATHENRY WWTP

Parameters	Number of Samples	Annual Max	Annual Mean
BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l	13	665	275.13
Total Phosphorus (as P) mg/l	13	18.1	9.14
Total Nitrogen mg/l	13	105.3	65.67
Suspended Solids mg/l	13	908	259.59
COD-Cr mg/l	13	1995	669.44
Hydraulic Capacity	0	3957	964

If other inputs in the form of sludge / leachate are added to the WWTP then these are included in Section 3.5 if applicable

Significance of Results:

The annual mean hydraulic loading is less than the peak Treatment Plant Capacity as detailed further in Section 3.2. The annual maximum hydraulic loading is less than the peak Treatment Plant Capacity as detailed further in Section 3.2.

2.2 Discharges from the agglomeration

2.2.1 Effluent Monitoring Summary - ATHENRY WWTP

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 Nitrogen mg/l	0	0	0	12	0	0	27.28	Pass
Total Phosphorus (as P) mg/l	0	0	0	12	0	0	1.63	Pass
Conductivity 20 C µS/cm	0	0	0	12	0	0	907.61	Pass
Ammonia-Total (as N) mg/l	0.4	0.8	0	12	9	8	14.3	Fail
Temperature °C	25	0	0	12	0	0	7.9	Pass
Suspended Solids mg/l	35	87.5	0	12	2	0	20.6	Pass
BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l	6	12	0	12	8	2	9.58	Fail
COD-Cr mg/l	125	250	0	12	0	0	57.97	Pass
ortho-Phosphate (as P) - unspecified mg/l	0.2	0.4	0	12	11	10	0.95	Fail
pH pH units	0	0	0	12	0	0	7.42	Pass

Notes:
1– This represents the Emission Limit Values after the Interpretation provided for under Condition 2 of the licence is applied
2 - For parameters where a mean ELV applies

Cause of Exceedance(s):

The Existing WWTP is not designed for Nutrient Removal. (There is a plant up-grade on-going).

Significance of Results:

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

There were nine exceedances in relation to the ammonia ELV, eight of which were above the Condition 2 ELV.

There were eight exceedances in relation to the BOD ELV, two of which were above the Condition 2 ELV.

There were 11 exceedances in relation to the Ortho-Phosphate, 10 of which were above the Condition 2 ELV.

The impact on receiving water is assessed further in section 2.3.

2.3 Ambient monitoring summary

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.

2.3.1 Ambient Monitoring Report Summary - ATHENRY WWTP

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	Code	Bathing Water	Drinking Water	FWPM	Shellfish	WFD Status
Upstream	150181, 227256	TPEFF1200D0193SW001	No	No	No	No	Unassigned
Downstream	148776, 226228	TPEFF1200D0193SW001	No	No	No	No	Poor

2.3.2 Ambient Monitoring Parameter Summary - ATHENRY WWTP

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
Alkalinity-total (as CaCO3) mg/l	RS29C020200	256.2	RS29C020300	266.2		
Dissolved Oxygen mg/l	RS29C020200	10.26	RS29C020300	8.98		
Dissolved Oxygen % Saturation	RS29C020200	96.2	RS29C020300	80.8		
Conductivity @25°C µS/cm	RS29C020200	567	RS29C020300	602.8		
BOD - 5 days (Total) mg/l	RS29C020200	1.63	RS29C020300	2.53	2.6	34.6
Nitrite (as N) µg/l	RS29C020200		RS29C020300	37.74		
Total Oxidised Nitrogen (as N) mg/l	RS29C020200	0.73	RS29C020300	1.67		
Temperature °C	RS29C020200	11.16	RS29C020300	11.26		
Nitrate (as N) mg/l	RS29C020200	0.73	RS29C020300	1.63		
Ammonia-Total (as N) mg/l	RS29C020200	0.03	RS29C020300	0.28	0.14	179.7
Total Hardness (as CaCO3) mg/l	RS29C020200	296.6	RS29C020300	303.8		

Chloride mg/l	RS29C020200	17.84	RS29C020300	21.22		
pH pH units	RS29C020200	8.16	RS29C020300	8		
ortho-Phosphate (as P) - unspecified mg/l	RS29C020200	0.01	RS29C020300	0.09	0.08	105.4
True Colour mg/litre Pt Co	RS29C020200	94.2	RS29C020300	81.8		

Significance of Results:

The WWTP discharge was not compliant with the ELV's set in the wastewater discharge licence.

The discharge from the works may be giving rise to a breach of EQS in the receiving water regardless of status.

The parameters which exceeded the EQS and may be causing an impact are: Ammonia and Ortho-Phosphate.

Any other know impacts: Unknown

3 OPERATIONAL REPORTS SUMMARY

3.1 Treatment Efficiency Report

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:

3.1.1 Treatment Efficiency Report Summary - ATHENRY WWTP

Parameter	Influent mass loading (kg/year)	Effluent mass emission (kg/year)	Efficiency (% reduction of influent load)	Comment
cBOD	82215.07	2524.48	96.93	
TN	19622.95	7191.54	63.35	
TP	2730.18	430.12	84.25	
COD	200044.46	15280.82	92.36	
SS	77571.09	5429.8	93	

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

3.2 Treatment Capacity Report Summary

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.

ATHENRY WWTP	
Peak Hydraulic Capacity (m^3/day) - As Constructed	4050
DWF to the Treatment Plant (m^3/day)	1350
Current Hydraulic Loading - annual max (m^3/day)	3957
Average Hydraulic loading to the Treatment Plant (m^3/day)	964
Organic Capacity (PE) - As Constructed	6000
Organic Capacity (PE) - Collected Load (peak week)	5763
Organic Capacity (PE) - Remaining	237
Will the capacity be exceeded in the next three years? (Yes/No)	No

3.3 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 is no Complaint data included in the AER.			

3.4 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.

3.4.1 Summary of Incidents

Incident Type	Cause	No. of incident occurrences	Recurring (Y/N)	Closed (Y/N)
There is no Incident data included in the AER.				

3.4.2 Summary of Overall Incidents

Question	Answer
Number of Incidents in 2018	27
Number of Incidents reported to the EPA via EDEN in 2018	1
Explanation of any discrepancies between the two numbers above	3 types of ELV breach (Ortho P, Ammonia, cBOD) are all considered 1 recurring incident (INCI008830).

3.5 Sludge / Other inputs to the 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.							

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:

No Appendix Included

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 2018 (No. of events)	Total volume discharged in 2018 (m^3)	Monitoring Status
SW004	150355, 227758	Yes	Low	Not Meeting	Unknown	Unknown	Not Monitored
SWO02	149970, 227057	Yes	Medium	Meeting	Unknown	Unknown	Not Monitored

4.1.2 Inspection Summary Report

SWO Summary	
How much sewage was discharged via SWOs in the agglomeration in the year (m^3)?	
Is each SWO identified as non meeting DoEHLG Guidance included in the Programme of Improvements?	Yes
The SWO Assessment included the requirements of relevant of WWDL schedules?	No
Have the EPA been advised of any additional SWOs / charges 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)	Licence Schedule	Licence Completion Date	Date Expired? (N/NA/Y)	Status of Works	Timeframe for Completing the Work	Comments
Inlet works with screening with ancillary screening processing facilities, grit separation with ancillary grit handling system	C	31/12/2015	Yes	Work ongoing on-site	30/06/2019	
Installation of advanced nutrient removal system(s) (Ammonia and Phosphorous).	C	31/12/2015	Yes	Work ongoing on-site	30/06/2019	
Separation of foul and surface water collection networks, where feasible	C	31/12/2015	Yes	Not Started	Unknown	The improvement programme will be reviewed by Irish Water for works required to comply with the licence condition on a prioritised basis.
Storm return pump sump, flow dividing chamber and lifting pump station	C	31/12/2015	Yes	Work ongoing on-site	30/06/2019	
Stormwater overflow weir designed to divert flows in excess of 3DWF and screening for any overflows from stormwater to the receiving waters.	C	31/12/2015	Yes	Work ongoing on-site	30/06/2019	

SW003 Overflow at Barrack Lane & Cross Street to cease	A	01/01/2016	Yes	Works Completed		
SW004 Overflow at north Gate Street and Court Lane to cease	A	01/01/2016	Yes	Not Started	Unknown	The improvement programme will be reviewed by Irish Water for works required to comply with the licence condition on prioritised basis

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	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.

5.1.1 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 (e.g. Appendix X).
Priority Substances Assessment	Yes	2015	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	Upgrade Works not complete yet
Is there a need to request/advise the EPA of any modifications to the existing WWDL?	No
List reason e.g. changes to monitoring requirements	Upgrade works not complete yet
Have these processes commenced?	-
Are all outstanding reports and assessments from previous AERs included as an appendix to this AER	NA

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

Signed: Date: 28/03/2019

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,

Eleanor Roche

Acting Head of Environmental Regulation.

7 APPENDIX

Appendix
Appendix 7.1 - pH Monitoring Data

Athenry WWTP - Additional Effluent pH readings

Taken at the plant by the plant operator

Number of Additional pH readings in 2018	Average pH of these readings	Max pH	Min pH
49	7.36	8.63	6.71