Annual Environmental Report

2018

Castlebar

D0047-01

CONTENTS

Revision Number	Description of Change	Author(s)	Approved By	Date of Approval
1	Organic Capacity PE in section 2.1.4.2	S. Casey	S. Casey	26/07/2019

1 EXECUTIVE SUMMARY AND INTRODUCTION TO THE 2018 AER

This Annual Environmental Report has been prepared for D0047-01, Castlebar, in Mayo 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 TREATMENT SUMMARY

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

- CASTLEBAR WWTP with a Plant Capacity PE of 28000

The treatment process includes the following:

1.1.1 CASTLEBAR WWTP

Treatment type	Yes / No	Details
Preliminary Treatment	Yes	Screening / grit removal
Primary Treatment	No	
Secondary Treatment	Yes	Conventional activated sludge
Nutrient Removal	Yes	Chemical dosing for phosphorus removal
Tertiary Treatment	No	

1.2 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
TPEFF2200D0047SW001	CASTLEBAR WWTP	Treated	Compliant	Not Applicable

1.3 LICENCE SPECIFIC REPORTING INCLUDED IN AER

Assessment / Report	Included in AER
There is no Licence Specific Reports included in the AER.	

2 TREATMENT PLANT PERFORMAND AND IMPACT SUMMARY

2.1 CASTLEBAR WWTP - TREATED DISCHARGE

2.1.1 INFLUENT MONITORING SUMMARY - CASTLEBAR 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
COD-Cr mg/l	14	746	0
Total Phosphorus (as P) mg/l	14	6.2	0
Total Nitrogen mg/l	14	38.9	0
BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l	14	207	0
Suspended Solids mg/l	14	343	0
Hydraulic Capacity	N/A	23263	10536

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 - TPEFF2200D0047SW001

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	0	25	0	0	0	Pass
Suspended Solids mg/l	35	87.5	0	25	0	0	0	Pass
BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l	25	50	0	25	0	0	0	Pass
Total Phosphorus (as P) mg/l	2	2.4	0	14	0	0	0	Pass
ortho-Phosphate (as P) - unspecified mg/l	0.7	0.84	0	14	0	0	0	Pass
E. Coli MPN/100ml	0	0	0	3	0	0	0	
Visual Inspection Descriptive	0	0	0	7	0	0	0	
pH pH units	0	0	0	25	0	0	0	
Enterococci (Intestinal) cfu/100ml	0	0	0	3	0	0	0	

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	0	0	0	13	0	0	0	
Ammonia-Total (as N) mg/l	0	0	0	14	0	0	0	
Faecal coliforms cfu/100ml	0	0	0	3	0	0	0	

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):

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

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	Code	Bathing Water	Drinking Water	FWPM	Shellfish	WFD Status
Upstream	121937, 293360	TPEFF2200D0047SW001	No	No	No	No	Good
Downstream	123360, 294478	TPEFF2200D0047SW001	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	RS34M010500	0.5	RS34C010400	1.03	2.6	20.3
Ammonia-Total (as N) mg/l	RS34M010500	0.01	RS34C010400	0.01	0.14	0.8
ortho-Phosphate (as P) - unspecified mg/l	RS34M010500	0.01	RS34C010400	0.01	0.075	-1.8
Aluminium - filtered µg/l	RS34M010500	9.54	RS34C010400			
Arsenic - filtered µg/l	RS34M010500	0.5	RS34C010400			
Boron - filtered µg/l	RS34M010500	9.88	RS34C010400			
Alkalinity-total (as CaCO3) mg/l	RS34M010500	267.25	RS34C010400	220.4		
Conductivity @25°C µS/cm	RS34M010500	572.88	RS34C010400	527.6		
True Colour mg/litre Pt Co	RS34M010500	41.38	RS34C010400	44.4		

Parameter Name	Upstream Monitoring Point Location	Upstream Monitoring Point Annual Mean	Downstream Monitoring Point Location	Downstream Monitoring Point Annual Mean	EQS	% of EQS
Uranium - filtered µg/l	RS34M010500	0.96	RS34C010400			
Nitrite (as N) µg/l	RS34M010500	2	RS34C010400	2		
pH pH units	RS34M010500	8.13	RS34C010400	7.95		
Barium - filtered µg/l	RS34M010500	23.5	RS34C010400			
Chromium - filtered µg/l	RS34M010500	0.95	RS34C010400			
Temperature °C	RS34M010500	12.09	RS34C010400	10.5		
Nickel - filtered µg/l	RS34M010500	1.1	RS34C010400			
Sodium - filtered mg/l	RS34M010500	13.63	RS34C010400			
Zinc - filtered µg/l	RS34M010500	1.41	RS34C010400			
Chloride mg/l	RS34M010500	20.7	RS34C010400	26.86		
Beryllium - filtered µg/l	RS34M010500	0.5	RS34C010400			
Antimony - filtered µg/l	RS34M010500	0.5	RS34C010400			
Calcium - filtered mg/l	RS34M010500	102.38	RS34C010400			
Suspended Solids mg/l	RS34M010500	3.25	RS34C010400	3.18		
Molybdenum - filtered µg/l	RS34M010500	0.5	RS34C010400			

Parameter Name	Upstream Monitoring Point Location	Upstream Monitoring Point Annual Mean	Downstream Monitoring Point Location	Downstream Monitoring Point Annual Mean	EQS	% of EQS
Total Hardness (as CaCO3) mg/l	RS34M010500	292.25	RS34C010400	250		
Total Oxidised Nitrogen (as N) mg/l	RS34M010500	0.41	RS34C010400	0.45		
Vanadium - filtered µg/l	RS34M010500	0.5	RS34C010400			
Thallium - filtered µg/l	RS34M010500	0.1	RS34C010400			
Cadmium - filtered µg/l	RS34M010500	0.02	RS34C010400			
Cobalt - filtered µg/l	RS34M010500	0.5	RS34C010400			
Dissolved Oxygen mg/l	RS34M010500	10.79	RS34C010400	10.18		
Copper - filtered µg/l	RS34M010500	0.79	RS34C010400			
Dissolved Oxygen % Saturation	RS34M010500	100.38	RS34C010400	96.02		
Iron - filtered µg/l	RS34M010500	107.75	RS34C010400			
Lead - filtered µg/l	RS34M010500	0.23	RS34C010400			
Selenium - filtered µg/l	RS34M010500	0.5	RS34C010400			
Nitrate (as N) mg/l	RS34M010500	0.41	RS34C010400	0.38		
Strontium - filtered µg/l	RS34M010500	375	RS34C010400			
Manganese - filtered µg/l	RS34M010500	11.26	RS34C010400			

Parameter Name	Upstream Monitoring Point Location	Upstream Monitoring Point Annual Mean	Downstream Monitoring Point Location	Downstream Monitoring Point Annual Mean	EQS	% of EQS
Potassium - filtered mg/l	RS34M010500	1.96	RS34C010400			
Magnesium - filtered mg/l	RS34M010500	5.5	RS34C010400			

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 discharge from the wastewater treatment plant does not have an observable negative 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

2.1.4.1 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:

Parameter	Influent mass loading (kg/year)	Effluent mass emission (kg/year)	Efficiency (% reduction of influent load)	Comment
TP	342377.69	5173.65	98.49	
TN	1366381.82	51685.81	96.22	

Parameter	Influent mass loading (kg/year)	Effluent mass emission (kg/year)	Efficiency (% reduction of influent load)	Comment
cBOD	504300.99	16662.37	96.7	
COD	74615.92	18060.68	75.8	
SS	10709.78	443.32	95.86	

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

2.1.4.2 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.

CASTLEBAR WWTP	
Peak Hydraulic Capacity (m3/day) - As Constructed	23814
DWF to the Treatment Plant (m3/day)	7938
Current Hydraulic Loading - annual max (m3/day)	23263
Average Hydraulic loading to the Treatment Plant (m3/day)	10536
Organic Capacity (PE) - As Constructed	28000
Organic Capacity (PE) - Collected Load (peak week)	17298
Organic Capacity (PE) - Remaining	10702
Will the capacity be exceeded in the next three years? (Yes/No)	No

2.1.5 SLUDGE / OTHER INPUTS

'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)
Other	4780	Volume (m3)	58	0.21	Yes	No	No

2.1.6 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
CASTLEBAR WWTP	Cake Sludge	3.42	Weight (Tonnes)	17.2	Athboy, Ballivor Co. Meath
CASTLEBAR WWTP	Cake Sludge	552.23	Weight (Tonnes)	17.2	Laragan, Elphin, Co. Roscommon
CASTLEBAR WWTP	Cake Sludge	138.4	Weight (Tonnes)	17.2	Tibohine, Ballaghadereen, Co. Roscommon

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 is no Complaint data included in the AER.			

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)
Uncontrolled release	Other	1	No	Yes

3.2.2 SUMMARY OF OVERALL INCIDENTS

Question	Answer
Number of Incidents in 2018	1
Number of Incidents reported to the EPA via EDEN in 2018	1
Explanation of any discrepancies between the two numbers above	

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 2018 (No. of events)	Total volume discharged in 2018 (m3)	Monitoring Status
SWO-1	115549, 291112	No	Low	Meeting	10	129567	Monitored

SWO Summary	
How much sewage was discharged via SWOs in the agglomeration in the year (m3)?	129567
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
D0047-SIP:01	Increase holding capacity of SW2-SWO to treat flows in excess of 3DWF	C	01/12/2010	Yes	Works Completed		
D0047-SIP:02	Upgrade of the WWTP (DBO contract)	C	01/12/2010	Yes	Works Completed		

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 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
There is no Licence Specific Report Required in this AER Annual Review.				

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	
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	
Have these processes commenced?	No
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: 29/05/2019

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

There are no Appendices included