Annual Environmental Report

2019

Clareabbey

D0199-01

CONTENTS

1 EXECUTIVE SUMMARY AND INTRODUCTION TO THE 2019 AER

1.1 Annual Statement of Measures

1.2 Treatment Summary

1.3 ELV Overview

1.4 License Specific Report Included in AER

2 TREATMENT PLANT PERFORMANCE AND IMPACT SUMMARY

2.1 CLAREABBEY WWTP - Treated Discharge

2.1.1 Influent Summary - CLAREABBEY WWTP

2.1.2 Effluent Monitoring Summary - CLAREABBEY WWTP -

2.1.3 Ambient Monitoring Summary for The Treatment Plant Discharge -

2.1.4 Operational Reports Summary for CLAREABBEY WWTP

2.1.5 Sludge/Other Inputs to CLAREABBEY WWTP

3 COMPLAINTS AND INCIDENTS

3.1 COMPLAINTS SUMMARY

3.2 REPORTED INCIDENTS SUMMARY

3.2.1 Summary of Incidents

3.2.2 Summary of Overall Incidents

4 INFRASTRUCTURAL ASSESSMENT AND PROGRAMME OF IMPROVEMENTS

4.1 STORM WATER OVERFLOW IDENTIFICATION AND INSPECTION REPORT

4.1.1 SWO Identification and Inspection Summary Report

4.2 REPORT ON PROGRESS MADE AND PROPOSALS BEING DEVELOPED TO MEET THE IMPROVEMENT PROGRAMME REQUIREMENTS

4.2.1 Specified Improvement Programme Summary

4.2.2 Improvement Programme Summary

4.2.3 Sewer Integrity Risk Assessment

5 LICENCE SPECIFIC REPORTS

6 CERTIFICATION AND SIGN OFF

6.1 Summary of AER Contents

7 APPENDIX

7.1 Ambient monitoring summary

1 EXECUTIVE SUMMARY AND INTRODUCTION TO THE 2019 AER

This Annual Environmental Report has been prepared for D0199-01, Clareabbey, in Clare 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.

1.2 TREATMENT SUMMARY

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

- CLAREABBEY WWTP with a Plant Capacity PE of 6000, the treatment type is 2 - Secondary 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
TPEFF0300D0199SW001	CLAREABBEY WWTP	Treated	Non-Compliant	BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l COD-Cr mg/l Suspended Solids mg/l Total Phosphorus (as P) 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 CLAREABBEY WWTP - TREATED DISCHARGE

2.1.1 INFLUENT MONITORING SUMMARY - CLAREABBEY 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
Suspended Solids mg/l	12	616	150.73
BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l	12	276.4	102.8
Total Phosphorus (as P) mg/l	12	10	4.8
Total Nitrogen mg/l	12	82.5	39.62
COD-Cr mg/l	12	541	262.07
Hydraulic Capacity	N/A	2856	1866

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 - TPEFF0300D0199SW001

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	12	2	1	56.39	Fail
Suspended Solids mg/l	35	87.5	N/A	12	5	1	36.96	Fail
Temperature °C	25	N/A	N/A	12	N/A	N/A	5.41	Pass
BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l	25	50	N/A	12	3	N/A	12.35	Fail
pH pH units	9	9	N/A	12	N/A	N/A	7.67	Pass
Total Phosphorus (as P) mg/l	2	2.4	N/A	12	7	7	2.26	Fail
Total Nitrogen mg/l	N/A	N/A	N/A	12	N/A	N/A	16.06	

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):

Inadequate infrastructure

Significance of Results:

The WWTP was non compliant with the ELVs set in the wastewater treatment plant. There were 2 exceedances in relation to COD, 5 exceedances in relation to Suspended Solids, 3 in relation to BOD, and 7 in relation to Total Phosphorus.

2.1.3 AMBIENT MONITORING SUMMARY FOR THE TREATMENT PLANT DISCHARGE TPEFF0300D0199SW001

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	134888, 176818	RS27F010720	No	No	No	No	Poor
Downstream	135203, 174252	RS27F010780	No	No	No	No	Poor

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
True Colour mg/litre Pt Co	RS27F010720	35.2	RS27F010780	34.6		
Temperature °C	RS27F010720	13.76	RS27F010780	14.02		
pH pH units	RS27F010720	7.9	RS27F010780	7.92		

Parameter Name	Upstream Monitoring Point Location	Upstream Monitoring Point Annual Mean	Downstream Monitoring Point Location	Downstream Monitoring Point Annual Mean	EQS	% of EQS
Dissolved Oxygen % Saturation	RS27F010720	89.98	RS27F010780	92.2		
Alkalinity-total (as CaCO3) mg/l	RS27F010720	161.4	RS27F010780	166		
Total Hardness (as CaCO3) mg/l	RS27F010720	228.6	RS27F010780	377.6		
BOD - 5 days (Total) mg/l	RS27F010720	1.867	RS27F010780	1.2		
Conductivity @25°C µS/cm	RS27F010720	862.4	RS27F010780	2334.2		
Nitrite (as N) µg/l	RS27F010720	6.587	RS27F010780	7.547		
ortho-Phosphate (as P) - unspecified mg/l	RS27F010720	0.023	RS27F010780	0.028		
Dissolved Oxygen mg/l	RS27F010720	9.434	RS27F010780	9.62		
Ammonia-Total (as N) mg/l	RS27F010720	0.05	RS27F010780	0.051		
Nitrate (as N) mg/l	RS27F010720	0.79	RS27F010780	0.823		
Chloride mg/l	RS27F010720	154.7	RS27F010780	617.26		
Total Oxidised Nitrogen (as N) mg/l	RS27F010720	0.81	RS27F010780	0.69		

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.

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 - CLAREABBEY WWTP

2.1.4.1 Treatment Efficiency Report - CLAREABBEY 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)
TN	25609	12410	52
SS	97426	28555	71
cBOD	66449	9537	86
TP	3102	1746	44
COD	169394	43566	74

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

2.1.4.2 Treatment Capacity Report Summary - CLAREABBEY 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.

CLAREABBEY 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)	2856
Average Hydraulic loading to the Treatment Plant (m^3/day)	1866
Organic Capacity (PE) - As Constructed	6000
Organic Capacity (PE) - Collected Load (peak week)[Note1]	4742
Organic Capacity (PE) - Remaining	1258
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 - CLAREABBEY 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
4	Blocked Sewer	0	4

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	Plant or equipment breakdown at WWTP	1	No	No
Spillage	EO caused by ragging or blocking	1	No	Yes
Breach of ELV	Inadequate Infrastructure	1	Yes	No

3.2.2 SUMMARY OF OVERALL INCIDENTS

Question	Answer
Number of Incidents in 2019	3
Number of Incidents reported to the EPA via EDEN in 2019	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	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
TBC	TBC	No	Unknown	Not yet Assessed	Unknown	Unknown	Unknown
TBC	TBC	No	Low	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?	N/A
The SWO Assessment included the requirements of relevant of WWDL schedules?	N/A
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 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?	Yes
List reason e.g. additional SWO identified	Addition of Quay rd PS to Clareabbey WWTP
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	Yes

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

Signed: Date: 16/03/2020

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 Clareabbey
2019
Upstream
aSW1u

Parameter	Ammonia N	Dissolved Oxygen % Saturation	Dissolved Oxygen	Temperature	Total Nitrogen N	Biological Oxygen Demand	Ortho-Phosphate P	pH	Total Phosphorus P	Suspended Solids	Visual Inspection
Max.	--	120	--	--	--	--	--	9	--	--	--
Min.	--	80	--	--	--	--	--	6	--	--	--
Test Method	--	--	--	--	--	--	--	--	--	--	--

Station	Station Reference	Laboratory	Sample Reference	Sample Date	Comments	Analyst Conclusion	mg/l	% O2	mg/l	Degrees C	mg/l	mg/l	mg/l	pH units	mg/l	mg/l	Descriptive
Bridge S.W. Of Doora -0720	RS27F010720	Clare Co Co New Rd	19-0091	16-Jan-2019	-	-	0.05	87.2	10.07	8.7	1.3	< 2	0.026	7.88	< 0.12		ok
Bridge S.W. Of Doora -0720	RS27F010720	Clare Co Co New Rd	19-0246	13-Feb-2019	-	-	0.032	92.4	10.93	8.5	1.5	< 2	< 0.01	7.97	< 0.12	4	ok
Bridge S.W. Of Doora -0720	RS27F010720	Clare Co Co New Rd	19-0702	10-Apr-2019	-	-	0.06	86.5	9.65	11	1.5	< 2	0.014	7.95	< 0.12	< 2	Surface particles
Bridge S.W. Of Doora -0720	RS27F010720	Clare Co Co New Rd	19-0917	15-May-2019	-	-	0.033	84.8	8.72	14.7	1	< 2	0.011	8.14	< 0.12	< 2	Clear
Bridge S.W. Of Doora -0720	RS27F010720	Clare Co Co New Rd	19-1338	24-July-2019	-	-	0.079	***71.2***	6.56	19	1.5	2.6	0.044	7.79	< 0.12	5.6	Clear
Bridge S.W. Of Doora -0720	RS27F010720	Clare Co Co New Rd	19-1993	16-Oct-2019	-	-	0.044	81.1	8.57	12.2	1.2	< 2	0.018	7.84	< 0.12	2	Clear

Downstream
aSW1d

Parameter	Ammonia N	Dissolved Oxygen % Saturation	Dissolved Oxygen	Temperature	Total Nitrogen N	Biological Oxygen Demand	Ortho-Phosphate P	pH	Total Phosphorus P	Suspended Solids	Visual Inspection
Max.	--	120	--	--	--	--	--	9	--	--	--
Min.	--	80	--	--	--	--	--	6	--	--	--
Test Method	--	--	--	--	--	--	--	--	--	--	--

Station	Station Reference	Laboratory	Sample Reference	Sample Date	Comments	Analyst Conclusion	mg/l	% O2	mg/l	Degrees C	mg/l	mg/l	mg/l	pH units	mg/l	mg/l	Descriptive
Clarecastle West Bridge - 0780	RS27F010780	Clare Co Co New Rd	19-0090	16-Jan-2019	-	-	0.114	85.2	9.84	8.7	1.5	< 2	0.031	7.82	< 0.12		Clear
Clarecastle West Bridge - 0780	RS27F010780	Clare Co Co New Rd	19-0245	13-Feb-2019	-	-	0.043	88.2	9.79	11.2		< 2	< 0.01	7.88	< 0.12	3.6	ok
Clarecastle West Bridge - 0780	RS27F010780	Clare Co Co New Rd	19-0703	10-Apr-2019	-	-	0.104	87.6	9.76	11.1	2.5	< 2	0.017	8.01	< 0.12	15.2	Surface scum
Clarecastle West Bridge - 0780	RS27F010780	Clare Co Co New Rd	19-0918	15-May-2019	-	-	0.072	87.9	9.3	13.4	1	< 2	0.024	8.15	< 0.12	4.4	Clear
Clarecastle West Bridge - 0780	RS27F010780	Clare Co Co New Rd	19-1339	24-July-2019	-	-	0.155	***71***	6.45	19.6	1.4	< 2	0.07	7.87	< 0.12	28	Clear
Clarecastle West Bridge - 0780	RS27F010780	Clare Co Co New Rd	19-1994	16-Oct-2019	-	-	0.046	83.4	8.78	12.4	0.8	< 2	0.021	7.88	< 0.12	3.2	Clear

			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	134888, 176809	RS27F010720					Poor	2.100	0.021	0.050
Downstream Monitoring Point	135207, 174238	RS27F010780	No	No	No	No	Poor	2.000	0.029	0.089
Difference								*-0.100*	*0.008*	*0.039*
EQS								1.500	0.035	0.065
% of EQS								-6.667%	22.857%	60.000%