Annual Environmental Report

2020

Doon

D0309-01

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1 EXECUTIVE SUMMARY AND INTRODUCTION TO THE 2020 AER

This Annual Environmental Report has been prepared for D0309-01, Doon, in Limerick 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.

New Ferric Dosing System Installed.

1.2 TREATMENT SUMMARY

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

- Doon Septic Tank, St. Fintans Terrace - 2020 with a Plant Capacity PE of 1534, the treatment type is 3P - Tertiary P removal
- Doon WWTP - 2020 with a Plant Capacity PE of 1534, 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
TPEFF1900D0309SW001	Doon Septic Tank, St. Fintans Terrace - 2020	N/A	Decommissioned	N/A

Discharge Point Reference	Treatment Plant	Discharge Type	Compliance Status	Parameters failing if relevant
TPEFF1900D0309SW001	Doon WWTP - 2020	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 DOON SEPTIC TANK, ST. FINTANS TERRACE - 2020 - TREATED DISCHARGE

Septic tank has been decommissioned.

2.2 DOON WWTP - 2020 - TREATED DISCHARGE

2.2.1 INFLUENT MONITORING SUMMARY - DOON WWTP - 2020

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	6	458	140.14
BOD, 5 days with Inhibition (Carbonaceo mg/l	6	168	46.74
Total Phosphorus (as P) mg/l	6	6.1	1.88
Suspended Solids mg/l	6	250	71.15
Hydraulic Capacity	N/A	1623	627

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 greater than the peak Treatment Plant Capacity. Further details on the plant capacity and efficiency can be found under the sectional 'Operational Performance Summary'.

2.2.2 EFFLUENT MONITORING SUMMARY - TPEFF1900D0309SW001

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	6	N/A	N/A	22.98	Pass
Suspended Solids mg/l	20	50	N/A	6	N/A	N/A	5.31	Pass
BOD, 5 days with Inhibition (Carbonaceo mg/l	10	20	N/A	6	N/A	N/A	3.55	Pass
pH pH units	9	9	N/A	6	N/A	N/A	8.28	Pass
Ammonia-Total (as N) mg/l	3	3.6	N/A	6	4	3	2.94	Fail
Total Phosphorus (as P) mg/l	0.3	0.36	N/A	6	1	N/A	0.17	Pass
ortho-Phosphate (as P) - unspecified mg/l	0.1	0.2	N/A	6	1	N/A	0.03	Pass

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 Oxidised Nitrogen (as N) mg/l	N/A	N/A	N/A	1	N/A	N/A	14.2	
Nitrate (as N) mg/l	N/A	N/A	N/A	6	N/A	N/A	4.91	

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):

Mechanical Breakdowns.

Significance of Results:

Ammonia fails due to mechanical breakdowns. Actuator Valves not working correctly.

2.2.3 AMBIENT MONITORING SUMMARY FOR THE TREATMENT PLANT DISCHARGE TPEFF1900D0309SW001

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	182925, 150236	RS25D030460	No	No	No	No	Good
Downstream	182856, 150173	RS25D030470	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	RS25D030460	2.023	RS25D030470	3.17	1.5	76.4
Ammonia-Total (as N) mg/l	RS25D030460	0.039	RS25D030470	0.034	0.065	-7.7
ortho-Phosphate (as P) - unspecified mg/l	RS25D030460	0.035	RS25D030470	0.038	0.035	8.1
Dissolved Oxygen % O2	RS25D030460	96.517	RS25D030470	96.933		
Temperature °C	RS25D030460	10.883	RS25D030470	11.183		
pH pH units	RS25D030460	7.75	RS25D030470	7.75		

Significance of Results:

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

The ambient monitoring results does not 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, concentrations downstream of the effluent discharge is noted.

The discharge from the wastewater treatment plant does have an observable negative impact on the Water Framework Directive status.

2.2.4 OPERATIONAL PERFORMANCE SUMMARY - DOON WWTP - 2020

2.2.4.1 Treatment Efficiency Report - Doon WWTP - 2020

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)
COD	23717	4114	83
cBOD	7911	636	92
TP	318	30	91
SS	12042	951	92
TN	N/A	N/A	N/A

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

2.2.4.2 Treatment Capacity Report Summary - Doon WWTP - 2020

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.

Doon WWTP - 2020	
Peak Hydraulic Capacity (m^3/day) - As Constructed	1032

Doon WWTP - 2020	
DWF to the Treatment Plant (m³/day)	345
Current Hydraulic Loading - annual max (m³/day)	1623
Average Hydraulic loading to the Treatment Plant (m³/day)	627
Organic Capacity (PE) - As Constructed	1534
Organic Capacity (PE) - Collected Load (peak week)[Note1]	700
Organic Capacity (PE) - Remaining	834
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.

2.2.5 SLUDGE / OTHER INPUTS - DOON WWTP - 2020

'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
There were no relevant environmental complaints in 2020.			

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	Yes	Yes
Breach of ELV	Plant or equipment breakdown at WWTP	1	Yes	No

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

3.2.2 SUMMARY OF OVERALL INCIDENTS

Question	Answer
Number of Incidents in 2020	4
Number of Incidents reported to the EPA via EDEN in 2020	4
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 2020 (No. of events)	Total volume discharged in 2020 (m3)	Monitoring Status
SW001	182913, 150240	Yes	Low	Meeting	Unknown	Unknown	Unknown

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?	No
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 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
Priority Substances Assessment	Yes	2016	No	

5.1 PRIORITY SUBSTANCES ASSESSMENT

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

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	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	Yes

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

Signed: Date: 11/05/2021

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

Doon Upstream

Location						Parameter					
Station	Station Reference	Station Easting	Station Northing	Sample Reference	Sample Date	Ammonia NH3-N	pH	Biological Oxygen Demand	Dissolved Oxygen % Saturati	Ortho-Phosphate PO4-P	Temperature
						mg/l	pH units	mg/l	% O2	mg/l	Degrees C
WDLE 15 u/s Trib of Dead River Doon Stream S	RS25D030460	182926	150237	20370144	14-Jan-2020	0.09	7.8	2.14	101	0.055	6.4
WDLE 15 u/s Trib of Dead River Doon Stream S	RS25D030460	182926	150237	20370960	10-Mar-2020	0.02	7.7	1	100	0.066	9.1
WDLE 15 u/s Trib of Dead River Doon Stream S	RS25D030460	182926	150237	20371561	09-Jun-2020	0.02	7.7	1	93	0.01	11.4
WDLE 15 u/s Trib of Dead River Doon Stream S	RS25D030460	182926	150237	20371932	14-Jul-2020	0.02	7.8	1	90.4	0.025	12.3
WDLE 15 u/s Trib of Dead River Doon Stream S	RS25D030460	182926	150237	20372492	08-Sep-2020	0.02	7.7	1	99.6	0.035	15.4
WDLE 15 u/s Trib of Dead River Doon Stream S	RS25D030460	182926	150237	20373306	10-Nov-2020	0.02	7.8	1	95.1	0.024	10.7
			EQS Std	individual value			6-9				
			EQS Std	good status mean		≤0.065	n/a	≤1.5		≤0.035	n/a
			EQS Std	good status 95%ile		≤0.14	n/a	≤2.6	>80, <120	≤0.075	n/a
				mean		0.032	7.8	1.2	96.5	0.036	10.9
				95%ile		0.073	7.8	1.9	100.8	0.063	14.6
				mean compliance		yes	yes	yes	yes	No	
				95%ile compliance		yes	yes	yss	yes	yes	--

half of level of detection for statistical purposes

exceeds Surface Waters Regulations good status

Note: Individual results which exceed the good status mean are highlighted in red

Doon Downstream

Location						Parameter					
Station	Station Reference	Station Easting	Station Northing	Sample Reference	Sample Date	Ammonia NH3-N	pH	Biological Oxygen Demand	Dissolved Oxygen % Saturati	Ortho-Phosphate PO4-P	Temperature
						mg/l	pH units	mg/l	% O2	mg/l	Degrees C
WDLE 16 Trib of Dead R.d/s Doon STP	RS25D030470	182857	150173	20370145	14-Jan-2020	0.06	7.7	3.13	101	0.067	6.6
WDLE 16 Trib of Dead R.d/s Doon STP	RS25D030470	182857	150173	20370961	10-Mar-2020	0.02	7.7	1	100	0.066	9.2
WDLE 16 Trib of Dead R.d/s Doon STP	RS25D030470	182857	150173	20371562	09-Jun-2020	0.02	7.8	1	93.1	0.012	11.4
WDLE 16 Trib of Dead R.d/s Doon STP	RS25D030470	182857	150173	20371933	14-Jul-2020	0.02	7.7	7.89	92.3	0.025	13.8
WDLE 16 Trib of Dead R.d/s Doon STP	RS25D030470	182857	150173	20372493	08-Sep-2020	0.02	7.8	1	100	0.034	15.4
WDLE 16 Trib of Dead R.d/s Doon STP	RS25D030470	182857	150173	20373307	10-Nov-2020	0.02	7.8	1	95.2	0.025	10.7
			EQS Std	individual value			6-9				
			EQS Std	good status mean		≤0.065	n/a	≤1.5		≤0.035	n/a
			EQS Std	good status 95%ile		≤0.14	n/a	≤2.6	>80, <120	≤0.075	n/a
				mean		0.027	7.8	2.5	96.9	0.038	11.2
				95%ile		0.050	7.8	6.7	100.8	0.067	15.0
				mean compliance		yes	yes	No	yes	No	
				95%ile compliance		yes	yes	No	yes	yes	--

half of level of detection for statistical purposes

exceeds Surface Waters Regulations good status

Note: Individual results which exceed the good status mean are highlighted in red

			Receiving Waters Designation (Yes/No)				Yes	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	182926, 150237	RS25D030460					Moderate	1.200	0.036	0.032
Downstream Monitoring Point	182857, 150173	RS25D030470	No	No	No	No	Moderate	2.500	0.038	0.027
Difference								*1.300*	*0.002*	*-0.005*
EQS								1.500	0.035	0.065
% of EQS								86.667%	5.714%	-7.692%