Annual Environmental Report

2021

Adare

D0312-01

CONTENTS

1 EXECUTIVE SUMMARY AND INTRODUCTION TO THE 2021 AER

This Annual Environmental Report has been prepared for D0312-01, Adare, 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.

PLC and HMI upgrades at this plant in 2021. New oxygen probes added to all three SBR's.

1.2 TREATMENT SUMMARY

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

- ADARE 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
TPEFF1900D0312SW001	ADARE WWTP	Treated	Non-Compliant	Ammonia-Total (as N) mg/l Total Nitrogen mg/l

1.4 LICENCE SPECIFIC REPORTING

Assessment / Report
There are no Licence Specific Reports included in this AER.

2 TREATMENT PLANT PERFORMANCE AND IMPACT SUMMARY

2.1 ADARE WWTP - TREATED DISCHARGE

2.1.1 INFLUENT MONITORING SUMMARY - ADARE 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
Total Nitrogen mg/l	12	65	34
BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l	12	349	174
COD-Cr mg/l	12	814	436
Suspended Solids mg/l	12	715	222
Total Phosphorus (as P) mg/l	12	9.06	4.88
Hydraulic Capacity	N/A	793	280

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’. 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 - TPEFF1900D0312SW001

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	N/A	12	N/A	N/A	21	Pass
Suspended Solids mg/l	35	88	N/A	12	N/A	N/A	10	Pass
BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l	25	50	N/A	12	N/A	N/A	4.20	Pass
Total Nitrogen mg/l	15	18	N/A	12	5	4	10	Fail
pH units	9.00	9.00	N/A	12	N/A	N/A	7.69	Pass
ortho-Phosphate (as P) - unspecified mg/l	1.00	1.20	N/A	12	N/A	N/A	0.272	Pass
Ammonia-Total (as N) mg/l	0.500	1.00	N/A	12	2	2	0.643	Fail
Total Oxidised Nitrogen (as N) mg/l	N/A	N/A	N/A	12	N/A	N/A	8.00	

Notes:
1 – This represents the Emission Limit Values after the Interpretation provided for under Condition 2 of the licence is applied

2 – For pH the WWDA specifies a range of pH 6 - 9

Cause of Exceedance(s):

Ammonia breach = MLSS too low. Total N = Over aeration.

Significance of Results:

Two parameters failed Total N and ammonia.

2.1.3 AMBIENT MONITORING SUMMARY FOR THE TREATMENT PLANT DISCHARGE TPEFF1900D0312SW001

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 Ecological Status
Upstream	147364, 146036	RS24M010960	No	No	No	No	Unassigned
Downstream	145979, 146639	TW36004127SN6001	No	No	No	No	Moderate

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 for the following: Total Nitrogen mg/l, Ammonia-Total (as N) mg/l.

The ambient monitoring results do not meet the required EQS at the upstream and the downstream monitoring locations. 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 Ortho-P , concentrations downstream of the effluent discharge is noted.

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 - ADARE WWTP

2.1.4.1 Treatment Efficiency Report - ADARE 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	3751	1628	57
TP	533	N/A	N/A
cBOD	18966	683	96
COD	47607	3489	93
SS	24278	1684	93

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

2.1.4.2 Treatment Capacity Report Summary - ADARE 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.

ADARE WWTP	
Peak Hydraulic Capacity (m^3/day) - As Constructed	1608
DWF to the Treatment Plant (m^3/day)	450
Current Hydraulic Loading - annual max (m^3/day)	793
Average Hydraulic loading to the Treatment Plant (m^3/day)	280
Organic Capacity (PE) - As Constructed	2500
Organic Capacity (PE) - Collected Load (peak week)[Note1]	1587
Organic Capacity (PE) - Remaining	913
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 - ADARE 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 related to the discharge(s) to water from the WWTP and network is included below.

Number of Complaints	Nature of Complaint	Number Open Complaints	Number Closed Complaints
There were no relevant environmental complaints in 2021.			

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)
	Plant or equipment breakdown at WWTP	1	No	No
Abatement Equipment offline	Plant or equipment breakdown at WWTP	1	No	Yes
Breach of ELV	Inadequate Infrastructure	1	Yes	No

Incident Type	Cause	No. of incident occurrences	Recurring (Y/N)	Closed (Y/N)
Spillage	Blocked Sewer	1	No	Yes

3.2.2 SUMMARY OF OVERALL INCIDENTS

Question	Answer
Number of Incidents in 2021	4
Number of Incidents reported to the EPA via EDEN in 2021	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 (chamber) where applicable	Irish Grid Ref. (outfall)	Included in Schedule of the WWDL	Significance of the overflow(High / Medium / Low)	Assessed against DoEHLG Criteria	No. of times activated in 2021 (No. of events)	Total volume discharged in 2021 (m3)	Monitoring Status
There are no Storm Water Overflows in this Agglomeration.							

Any TBC SWO(s) were identified as part of the on-going National SWO programme and will be updated in subsequent AER(s) once the information is confirmed.

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?	Yes
Have the EPA been advised of any additional SWOs / changes to Schedule C3 and A4 under Condition 1.7?	N/A

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 a 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
D0312-SIP:01	Grease removal at WWTP	C	01/01/2014	Yes	Works Completed		
D0312-SIP:02	Outfall And flap valve repair	C	01/01/2014	Yes	At Planning Stage		Options assessment being undertaken to agree scope
D0312-SIP:03	Storm water holding facilities at WWTP	C	01/01/2014	Yes	At Planning Stage		Feasibility study and concept design is being undertaken

A summary of the status of any other improvements identified by under Condition 5 assessments- is included below.

4.2.2 IMPROVEMENT PROGRAMME SUMMARY

Improvement Identifier	Improvement Description / or any Operational Improvements	Improvement Source	Expected Completion Date	Comments
No additional improvements planned at this time.				

4.2.3 SEWER INTEGRITY RISK ASSESSMENT

N/A

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 a 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
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
Has a Technical amendment/licence review application been submitted to the Agency by IW?	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	Yes
List reason e.g. changes to monitoring requirements	Ambient monitoring location changes
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: 21/04/2022

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 Monitoring Data for Coastal/transitional waters - Where the ambient data is not in EIMS, please complete the table belows below and append with ambient monitoring results (into 1 combined PDF). Please read notes tab for further info on coastal and tranistional assessment.

Ambeint Monitoring Report Summary Data

Ambient monitoring point/Coastal Monitoring Code	Irish Grid Reference	Bathing Water
TW36004127SN6001	145979, 146639	No

Ambient Monitoring Results Summary

Monitoring point	Date	Ammonia NH3-N mg/l
Maigue Railway Br d/s Adare STP Adare WDLM24	12-Jan-2021	< 0.04
Maigue Railway Br d/s Adare STP Adare WDLM24	9-Feb-2021	< 0.04
Maigue Railway Br d/s Adare STP Adare WDLM24	9-Mar-2021	< 0.04
Maigue Railway Br d/s Adare STP Adare WDLM24	13-Apr-2021	< 0.04
Maigue Railway Br d/s Adare STP Adare WDLM24	11-May-2021	< 0.04
Maigue Railway Br d/s Adare STP Adare WDLM24	8-June-2021	< 0.04
Maigue Railway Br d/s Adare STP Adare WDLM24	13-July-2021	< 0.04
Maigue Railway Br d/s Adare STP Adare WDLM24	10-Aug-2021	0.06
Maigue Railway Br d/s Adare STP Adare WDLM24	14-Sep-2021	0.07
Maigue Railway Br d/s Adare STP Adare WDLM24	9-Nov-2021	< 0.04
Maigue Railway Br d/s Adare STP Adare WDLM24	8-Dec-2021	0.1
Maigue Railway Br d/s Adare STP Adare WDLM24	14-Dec-2021	< 0.04

Bathing Water Results Summary (if revelant)

Monitoring point	Date	Parameter 1
		Results

Adare

Ambient Monitoring Point from WWDL (or as agreed with EPA)	Irish National Grid Reference (Easting, Northing)	EPA Feature Coding Tool code
Upstream Monitoring Point	147364, 146036	RS24M010960
Downstream Monitoring Point	145979, 146639	TW36004127SN6001
Difference		
EQS		

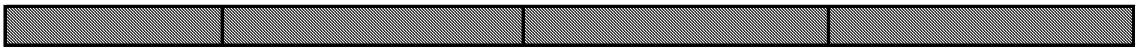
% of EQS		

Designations			
Drinking Water	FWPM	Shellfish	
No	No	No	

BOD mg/l	Dissolved Oxyen mg/l	Total Nitrogen mg/l	pH
< 2	83.3	2.61	8.2
< 2	98	2.68	7.9
< 2	105	2.33	8.4
< 2	104	2.03	8.6
< 2	88	1.53	8.1
< 2	89.1	0.972	8.2
2.77	94.2	1.52	8.3
< 2	78.9	1.92	8.1
< 2	74.1	1.45	8.3
< 2	101	2.07	8.2
5	94.3	3.09	7.9
< 2	91.5	2.65	8.1

Parameter 2	Parameter 3	Parameter 4	
Results	Results	Results	

Receiving Waters Designation (Yes/No)			
Bathing Water	Drinking Water	FWPM	Shellfish
No	No	No	No



	WFD Status
	Moderate.

Temperature	Ortho -P mg/l
7.4	0.048
4.3	0.046
8.3	0.047
9.7	< 0.01
11.9	< 0.01
15.2	0.012
17	0.064
15.2	0.132
15.8	0.106
11.9	0.083
5.5	0.203
7.2	0.065

	etc
	Results

Yes	Mean (mg/l)		
Current WFD Status	cBOD	o-Phosphate (as P)	Ammonia (as N)
Moderate	1.414	0.056	0.030
Moderate	1.500	0.068	0.034
	0.086	*0.012*	*0.004*
	1.500	0.035	0.065

	5.733%	34.286%	6.154%