Annual Environmental Report

2023

Midleton

D0056-01

CONTENTS

1 EXECUTIVE SUMMARY AND INTRODUCTION TO THE 2023 AER

This Annual Environmental Report has been prepared for D0056-01, Midleton, in Cork 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)

- Midleton WWTP with a Plant Capacity PE of 15000, the treatment type is 3N - Tertiary N 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
TPEFF0500D0056SW001	Midleton WWTP	Combined	Non-Compliant	N/A

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 MIDLETON WWTP - COMBINED DISCHARGE

2.1.1 INFLUENT MONITORING SUMMARY - MIDLETON 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	16	855	306
Total Nitrogen mg/l	16	46	26
BOD, 5 days with Inhibition (Carbonaceous mg/l	16	229	107
Hydraulic Capacity	N/A	13628	9242

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’.

2.1.2 EFFLUENT MONITORING SUMMARY - TPEFF0500D0056SW100

Parameter	UTTD ELV	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	25	N/A	N/A	19.53	Pass
Suspended Solids mg/l	35	87.5	N/A	25	N/A	N/A	3.38	Pass
BOD, 5 days with Inhibition (Carbonaceous) mg/l	25	50	N/A	25	N/A	N/A	2.34	Pass
Total Nitrogen mg/l	15	18	N/A	25	N/A	N/A	6.97	Pass

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):

Not applicable

Significance of Results:

The WWTP is compliant with the ELV's set in the Urban Wastewater Treatment Directive.

2.1.3 EFFLUENT MONITORING SUMMARY - COMBINED DISCHARGE - TPEFF0500D0056SW001

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)
BOD, 5 days with Inhibition (Carbonaceous mg/l)	25	50	N/A	25	N/A	N/A	1.75	Pass
COD-Cr mg/l	125	250	N/A	25	N/A	N/A	24	Pass
ortho-Phosphate (as P) - unspecified mg/l	2	2.4	N/A	25	N/A	N/A	0.525	Pass
pH units Note 2	9	9	N/A	25	N/A	N/A	7.91	Pass
Suspended Solids mg/l	35	87.5	N/A	25	N/A	N/A	5.36	Pass
Total Nitrogen mg/l	15	18	N/A	25	N/A	N/A	6.26	Pass
Faecal coliforms no./100mls	<250FC/100mls	N/A	N/A	64	N/A	N/A	1231	Fail
Ammonia-Total (as N) mg/l	N/A	N/A	N/A	25	N/A	N/A	0.349	

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)
Arsenic - unspecified µg/l	N/A	N/A	N/A	4	N/A	N/A	N/A	
Cadmium - unspecified µg/l	N/A	N/A	N/A	4	N/A	N/A	N/A	
Chromium - unspecified µg/l	N/A	N/A	N/A	4	N/A	N/A	N/A	
Copper - unspecified µg/l	N/A	N/A	N/A	4	N/A	N/A	23	
Lead - unspecified µg/l	N/A	N/A	N/A	4	N/A	N/A	N/A	
Mercury - unspecified µg/l	N/A	N/A	N/A	4	N/A	N/A	N/A	
Nickel - unspecified µg/l	N/A	N/A	N/A	4	N/A	N/A	0.295	
PCB 101 µg/l	N/A	N/A	N/A	2	N/A	N/A	N/A	
PCB 118 µg/l	N/A	N/A	N/A	2	N/A	N/A	N/A	
PCB 138 µg/l	N/A	N/A	N/A	2	N/A	N/A	N/A	
PCB 153 µg/l	N/A	N/A	N/A	2	N/A	N/A	N/A	

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)
PCB 180 µg/l	N/A	N/A	N/A	2	N/A	N/A	N/A	
PCB 28 µg/l	N/A	N/A	N/A	2	N/A	N/A	N/A	
PCB 52 µg/l	N/A	N/A	N/A	2	N/A	N/A	N/A	
Total Oxidised Nitrogen (as N) mg/l	N/A	N/A	N/A	25	N/A	N/A	5.18	
Zinc - unspecified µg/l	N/A	N/A	N/A	4	N/A	N/A	25	

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):

Not applicable

Significance of Results:

The WWTP is compliant with most of the ELV's set in the Wastewater Discharge Licence aside from the Faecal coliforms requirements.

2.1.4 AMBIENT MONITORING SUMMARY FOR COMBINED DISCHARGE - TPEFF0500D0056SW001

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
Downstream	187001, 70001	TW05003153LE6005	No	No	No	No	Moderate
Downstream	185998, 68502	TW05003153LE6006	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 coastal/transitional 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 negative impact on the Water Framework Directive status.

2.1.5 OPERATIONAL PERFORMANCE SUMMARY

2.1.5.1 Treatment Efficiency Report - Midleton 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)
cBOD	339158	5709	98
TP	N/A	N/A	N/A
COD	968139	78963	92
SS	N/A	17506	N/A
TN	81112	20443	75

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

2.1.5.2 Treatment Capacity Report Summary - Midleton 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.

Midleton WWTP	
Peak Hydraulic Capacity (m^3/day) - As Constructed	10368
DWF to the Treatment Plant (m^3/day)	3456
Current Hydraulic Loading - annual max (m^3/day)	13628
Average Hydraulic loading to the Treatment Plant (m^3/day)	9242
Organic Capacity (PE) - As Constructed	15000
Organic Capacity (PE) - Collected Load (peak week)[Note1]	17042
Organic Capacity (PE) - Remaining	0
Will the capacity be exceeded in the next three years? (Yes/No)	Yes

Note[1]: 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.

2.1.6 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)
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 2023.			

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 Uisce Éireann 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	Recurring (Y/N)	Closed (Y/N)
Uncontrolled release	Adverse Weather	No	No
Other	Plant or equipment breakdown at WWTP	No	No
Uncontrolled release	Network Infrastructure	Yes	No

3.2.2 SUMMARY OF OVERALL INCIDENTS

Question	Answer
Number of Incidents in 2023	3
Number of Incidents reported to the EPA via EDEN in 2023	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 AND INSPECTION SUMMARY REPORT

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 2023 (No. of events)	Total volume discharged in 2023 (m3)	Monitoring Status
SW03MIDL	187975,73109	Yes	Low Significance	Not Meeting Criteria	Unknown	Unknown	Monitored
SW04MIDL	188047,72518	Yes	Low Significance	Not Meeting Criteria	Unknown	Unknown	Monitored
SW05MIDL	188518,71783	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Monitored
SW07MIDL	187525,72897	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Monitored
TBC	188346,73332	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Monitored
TBC	188266,73232	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Monitored

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 2023 (No. of events)	Total volume discharged in 2023 (m3)	Monitoring Status
TBC	188346,73332	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Monitored
TBC	188740,73338	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Monitored
-	187687,73025	No	Low Significance	Not Meeting Criteria	Unknown	Unknown	Not Monitored

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 wastewater discharge by metered SWOs during 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 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
D0056-SIP:01	Increase Midleton WWTP capacity to 15,000PE	C	31/12/2011	Yes	Works Completed	N/A	-
D0056-SIP:02	Infiltration programme	C	31/12/2011	Yes	Works Completed	N/A	-
D0056-SIP:03	Infiltration programme - SW03	C	31/12/2011	Yes	Works Completed	N/A	-
D0056-SIP:04	Infiltration programme - SW04	C	31/12/2011	Yes	Works Completed	N/A	-
D0056-SIP:05	Upgrading of Storm Water Overflows to comply with the limits outlined in Schedule A.4 (Condition 5.6) - SW03	C	31/12/2011	Yes	Work ongoing on-site	2029	-

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
D0056-SIP:06	Upgrading of Storm Water Overflows to comply with the limits outlined in Schedule A.4 (Condition 5.6) - SW04	C	31/12/2011	Yes	Work ongoing on-site	2029	-

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

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 Tables 4.2.1 and 4.2.2.

5 LICENCE SPECIFIC REPORTS

5.1 PRIORITY SUBSTANCES ASSESSMENT

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	Included in this AER
Priority Substances Assessment	Yes	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?	Yes
List reason e.g. additional SWO identified	Connection of treated industrial effluent into primary discharge outfall.
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	N/A
Have these processes commenced?	Yes
Are all outstanding reports and assessments from previous AERs included as an appendix to this AER	No

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

Signed: Date: 16/04/2024

This AER has been produced by Uisce Éireann's Environmental Information System (EIMS) and has been electronically signed off in that system for and on behalf of ,

Eleanor Roche

Head of Environmental Regulation.

7 APPENDIX

Appendix
Appendix 7.1 - Ambient Monitoring Summary
Appendix 7.2 - Ambient Raw Data

Ambient Points

Ambient Monitoring Point from WWDL (or as agreed with EPA)	*Irish Grid Reference*	EPA Feature Coding Tool code	Receiving Waters Designation (Y/N)				WFD Status
			Bathing Water	Drinking Water	FWPM	Shellfish	
TW05003153LE6005	187001, 70001	TPEFF0500D0056SW001	No	No	No	No	Moderate
TW05003153LE6006	185998, 68502	TPEFF0500D0056SW001	No	No	No	No	Moderate

Ambient Impact Assessment Table

Parameter Name	Downstream Monitoring Point Location	Upstream Monitoring Point Annual Mean	Downstream Monitoring Point Location	Downstream Monitoring Point Annual Mean	EQS	%EQS
Ammonia-Total (as N) mg/l	TW05003153LE6005	0.078	TW05003153LE6006	0.052		
BOD - 5 days (Total)	TW05003153LE6005	-	TW05003153LE6006	0.5	4	
Dissolved Oxygen % saturation	TW05003153LE6005	119	TW05003153LE6006	119	70-130	
ortho-Phosphate (as P) - unspecified mg/l	TW05003153LE6005	0.026	TW05003153LE6006	0.015	0.06	
pH	TW05003153LE6005	8	TW05003153LE6006	8		
Total Oxidised Nitrogen (as N) mg/l	TW05003153LE6005	0.26	TW05003153LE6006	0.19		

Ambient Raw Data

Downstream						
Monitoring Point	**Date**	**Ammonia-Total (as N) mg/l**	**Dissolved Oxygen % saturation**	**ortho-Phosphate (as P) - unspecified mg/l**	**pH**	**Total Oxidised Nitrogen (as N) mg/l**
TW05003153LE6005	31/01/2023	0.049	96	0.018	7.9	0.69
	31/01/2023	0.049	96	0.019	7.9	0.76
	21/06/2023	0.017	120	0.0085	8.2	0.15
	21/06/2023	0.016	119	0.0087	8.2	0.017
	26/07/2023	0.1	113	0.098	8.1	0.049
	26/07/2023	0.19	115	0.028	8.1	0.051
	23/08/2023	0.081	89	0.014	8	0.17
	23/08/2023	0.12	90	0.016	8	0.22
mean		0.07775	104.75	0.026275	8.05	0.263375
95%ile		0.1655	119.65	0.0735	8.2	0.7355

Downstream							
Monitoring Point	**Date**	**Ammonia-Total (as N) mg/l**	**BOD - 5 days (Total)**	**Dissolved Oxygen % satuaration**	**ortho-Phosphate (as P) - unspecified mg/l**	**pH**	**Total Oxidised Nitrogen (as N) mg/l**
TW05003153LE6006	31/01/2023	0.05	0.5	98	0.018	7.9	0.52
	31/01/2023	0.046	0.5		0.019	7.9	0.64
	21/06/2023	0.017	0.5	119	0.0064	8.2	0.005
	21/06/2023	0.017	0.5	119	0.0064	8.2	0.005
	26/07/2023	0.077	0.5		0.021	8.2	0.047
	26/07/2023	0.082	0.5		0.024	8.2	0.045
	23/08/2023	0.074	0.5	93	0.0096	8	0.18
	23/08/2023	0.056	0.5	87	0.013	8	0.12
mean		0.052375	0.5	103.2	0.014675	8.075	0.19525
95%ile		0.08025	0.5	119	0.02295	8.2	0.598