Annual Environmental Report

2023

Kildare

D0178-01

CONTENTS

1 EXECUTIVE SUMMARY AND INTRODUCTION TO THE 2023 AER

This Annual Environmental Report has been prepared for D0178-01, Kildare, in Kildare 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.

There were no capital works, significant changes or operational changes undertaken in 2023.

1.2 TREATMENT SUMMARY

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

- Kildare Town WWTP with a Plant Capacity PE of 28000, 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
TPEFF1400D0178SW001	Kildare Town WWTP	Treated	Compliant	N/A
TPEFF1400D0178SW003	Kildare Town WWTP	Treated - Secondary	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 KILDARE TOWN WWTP - TREATED DISCHARGE

2.1.1 INFLUENT MONITORING SUMMARY - KILDARE TOWN 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
BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l	19	594	247
Total Nitrogen mg/l	11	93	64
ortho-Phosphate (as P) - unspecified mg/l	12	5.45	4.77
pH pH units	12	7.71	7.37
COD-Cr mg/l	19	935	665
Suspended Solids mg/l	19	367	248
Ammonia-Total (as N) mg/l	19	74	59
Total Phosphorus (as P) mg/l	19	11	8.57
Hydraulic Capacity	N/A	17889	2413

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'. 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 (A) EFFLUENT MONITORING SUMMARY - TPEFF3900D0178SW001

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	19	N/A	N/A	20	Pass
Suspended Solids mg/l	25	62.5	N/A	19	N/A	N/A	3.83	Pass
BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l	25	50	N/A	19	N/A	N/A	3.66	Pass
pH pH units	6	9	N/A	12	N/A	N/A	7.19	Pass
Total Phosphorus (as P) mg/l	2	2.4	N/A	19	N/A	N/A	0.285	Pass
Ammonia-Total (as N) mg/l	2	2.4	N/A	19	N/A	N/A	0.543	Pass
ortho-Phosphate (as P) - unspecified mg/l	0.5	0.6	N/A	12	N/A	N/A	0.137	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 exceedances with Condition 2 Interpretation included	Annual Mean	Overall Compliance (Pass/Fail)
Total Nitrogen mg/l	N/A	N/A	N/A	12	N/A	N/A	18	
Conductivity @20°C µS/cm	N/A	N/A	N/A	12	N/A	N/A	898	

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 the ELV's set in the Wastewater Discharge Licence.

2.1.2 (B) EFFLUENT MONITORING SUMMARY - TPEFF3900D0178SW003

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	10.75	Pass
BOD, 5 days with Inhibition (Carbonaceous) mg/l	8	16	N/A	12	N/A	N/A	1	Pass
Suspended Solids mg/l	25	62.5	N/A	12	N/A	N/A	1.08	Pass
pH pH units	6	9	N/A	12	N/A	N/A	7.20	Pass
Total Phosphorus (as P) mg/l	2	2.4	N/A	12	N/A	N/A	0.045	Pass
Ammonia-Total (as N) mg/l	0.4	0.8	N/A	12	N/A	N/A	0.018	Pass
ortho-Phosphate (as P) - unspecified mg/l	0.25	0.5	N/A	12	N/A	N/A	0.023	Pass

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 secondary discharge (SW003) is compliant with the ELV's set in the Wastewater Discharge Licence.

2.1.3 AMBIENT MONITORING SUMMARY FOR THE TREATMENT PLANT DISCHARGE TPEFF3900D0178SW001 & TPEFF3900D0178SW003

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	263312, 205758	RS14B011260	No	No	No	No	Good
Downstream (SW003)	263682, 201768	RS14B011400	No	No	No	No	Good
Downstream (SW001)	263419, 205468	RS14B011310	No	No	No	No	Good

The results for ambient results and / or additional monitoring data sets are included in the **Appendix 7.1 - Ambient Monitoring Summary.**

Significance of Results:

SW001

The WWTP discharge was compliant with the ELV's set in the wastewater discharge licence.

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 Ortho-P, BOD and Ammonia concentrations downstream of the effluent discharge is noted.

A deterioration in water quality has been identified, however it is not known if it is or is not caused by the WWTP.

Other causes of deterioration in water quality in the area are unknown.

The discharge from the wastewater treatment plant does not have an observable negative impact on the Water Framework Directive status.

SW003

The WWTP discharge was compliant with the ELV's set in the wastewater discharge licence.

The ambient monitoring results 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 Ortho-P and Ammonia concentrations downstream of the effluent discharge is noted.

A deterioration in water quality has been identified, however it is not known if it is or is not caused by the WWTP.

Other causes of deterioration in water quality in the area are unknown.

The secondary 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 - KILDARE TOWN WWTP

2.1.4.1 Treatment Efficiency Report - Kildare Town 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)
COD	611456	17927	97
cBOD	227177	3362	99
TN	65234	17722	73
TP	7882	262	97
SS	227815	3520	98

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

2.1.4.2 Treatment Capacity Report Summary - Kildare Town 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.

Kildare Town WWTP	
Peak Hydraulic Capacity (m^3/day) - As Constructed	9450
DWF to the Treatment Plant (m^3/day)	3150
Current Hydraulic Loading - annual max (m^3/day)	17889
Average Hydraulic loading to the Treatment Plant (m^3/day)	2413
Organic Capacity (PE) - As Constructed	28000
Organic Capacity (PE) - Collected Load (peak week)[Note1]	11328
Organic Capacity (PE) - Remaining	16672
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 - KILDARE TOWN WWTP

'Other inputs' to the waste water treatment plant are summarised in the 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	Blocked Sewer	No	Yes
Other	Shock load to the WWTP	No	Yes

3.2.2 SUMMARY OF OVERALL INCIDENTS

Question	Answer
Number of Incidents in 2023	2
Number of Incidents reported to the EPA via EDEN in 2023	2
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 2023 (No. of events)	Total volume discharged in 2023 (m^3)	Monitoring Status
SW002	273410 210764	Yes	Medium Significance	Meeting Criteria	0	0	Monitored
TBC	272422 211261	Yes	Medium Significance	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 (m^3)?	0
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
D0178-SIP:01	Complete improvements to comply with ELVs specified in Schedule A.2: Secondary Waste Water discharge(s) & Monitoring. Implement, in accordance with Condition 5.4.2, either (a) an alternative secondary discharge point, or (b) an alternative means of managing the existing waste water discharge volume and quality during periods of low flow in the receiving water.	C	22/12/2019	Yes	Not Started		UÉ in process of addressing source of secondary discharge.

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	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?	N/A
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:

Date: 27/02/2024

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

Kildare Town Ambient Monitoring Summary 2023 – SW001 – Primary Discharge

			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	263312, 205758	RS14B011260	No	No	No	No	Good	1.892	0.051	0.060
Downstream Monitoring Point	263419, 205468	RS14B011310	No	No	No	No	Good	2.467	0.401	0.374
Difference								*0.575*	*0.350*	*0.314*
EQS								1.500	0.035	0.065
% of EQS								38.333%	999.842%	483.077%

Kildare Town Ambient Monitoring Summary 2022 – SW003 – Secondary Discharge

			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	273451, 210890	RS14T020100	No	No	No	No	Poor	1.000	0.026	0.010
Downstream Monitoring Point	273420, 210441	RS14T020200	No	No	No	No	Poor	1.000	0.032	0.014
Difference								*0.000*	*0.006*	*0.004*
EQS								1.500	0.035	0.065
% of EQS								0.000%	16.667%	6.410%

Kildare Town Ambient Monitoring Summary 2023 – SW001

Upstream Results

Station Name	Sample Date	BOD mg/ l	Suspended solids mg/l	Total Phosphorus mg/l	Ammonia mg/l	Ortho-Phosphate mg/l
Upstream	25/01/2023	2	5	2		
Upstream	22/02/2023	2	5	0.05	0.01	
Upstream	23/03/2023	2.5	8	0.2	0.05	0.1
Upstream	19/04/2023	2	5	0.2	0.05	0.05
Upstream	25/05/2023	3.6	5	0.02	0.17	0.05
Upstream	28/06/2023	1.9	5	0.04	0.05	0.05
Upstream	19/07/2023	1	5	0.07		0.05
Upstream	25/08/2023	2	5	0.2	0.05	0.05
Upstream	21/09/2023	1	5	0.06	0.07	0.05
Upstream	12/10/2023	<1	<5	0.06	0.08	<0.05
Upstream	16/11/2023	3	9	0.06	<0.05	<0.05
Upstream	14/12/2023	1	9	0.06	<0.05	<0.05
	Mean	**1.89**	**5.56**	**0.25**	**0.060**	**0.051**
	95%ile	**3.27**	**9.00**	**1.01**	**0.130**	**0.078**

Downstream Results

Station Name	Sample Date	BOD mg/ l	Suspended solids mg/l	Total Phosphorus mg/l	Ammonia mg/l	Ortho-Phosphate mg/l
Downstream	25/01/2023	2	5	2		
Downstream	22/02/2023	2	10	0.05	3.2	3.9
Downstream	23/03/2023	2	7	0.2	0.05	0.1
Downstream	19/04/2023	10	5	0.2	0.05	0.05
Downstream	25/05/2023	1.9	5	0.02	0.05	0.05
Downstream	28/06/2023	1	1	0.04	0.1	0.05
Downstream	19/07/2023	1	5	0.08		0.05
Downstream	25/08/2023	2	5	0.2	0.05	0.05
Downstream	21/09/2023	1	5	0.06	0.09	0.05
Downstream	12/10/2023	<1	<5	0.06	0.08	<0.05
Downstream	16/11/2023	3	6	0.05	<0.05	<0.05
Downstream	14/12/2023	3	9	0.06	<0.05	<0.05
	Mean	**2.47**	**5.31**	**0.25**	**0.37**	**0.40**
	95%ile	**6.15**	**9.45**	**1.01**	**1.81**	**2.00**

Note 1: Where the concentration in the result is less than the limit of detection (LOD), a value of LOD/sqrt(2) was used in calculating the mean and 95%ile concentrations.

Note 2: There is no Temperature or pH monitoring undertaken U/S or D/S of SW001 as confirmed with UÉ.

Kildare Town Ambient Monitoring Summary 2023 – SW003

Upstream Results									
Station Name	Sample Date	Temperature ^{o} C	pH (Units)	BOD mg/l	Suspended solids mg/l	Total Phosphorus mg/l	Ammonia mg/l	Ortho-Phosphate mg/l	DO mg/l
Upstream	27/01/2023	12.6	7.21	1	1	0.038	0.01	0.03	9.86
Upstream	17/02/2023	13.3	7.26	1	1	0.04	0.01	0.02	10.63
Upstream	24/03/2023	14.6	7.2	1	1	0.056	0.01	0.05	9.32
Upstream	26/04/2023	15.3	7.1	1	1	0.08	0.01	0.05	9.22
Upstream	26/05/2023	12.1	7.24	1	1	0.05	0.01	0.02	8.54
Upstream	19/06/2023	17.2	6.98	1	1	0.042	0.01	0.02	8.63
Upstream	24/07/2023	19.6	7.14	1	1	0.021	0.01	0.01	8.64
Upstream	18/08/2023	19.6	7.34	1	1	0.014	0.01	0.01	8.28
Upstream	25/09/2023	15.8	7.34	1	1	0.03	0.01	0.02	8.71
Upstream	27/10/2023	11.1	7.81	1	1	0.027	0.01	0.02	8.61
Upstream	27/11/2023	9.4	7.87	1	1	0.038	0.01	0.03	9.04
Upstream	13/12/2023	7.7	7.11	1	1	0.039	0.01	0.03	10.14
	Mean	**14.03**	**7.30**	**1.00**	**1.00**	**0.04**	**0.010**	**0.026**	**9.14**
	95%ile	**19.60**	**7.84**	**1.00**	**1.00**	**0.07**	**0.010**	**0.050**	**10.36**

Downstream Results									
Station Name	Sample Date	Temperature ^{o} C	pH (Units)	BOD mg/l	Suspended solids mg/l	Total Phosphorus mg/l	Ammonia mg/l	Ortho-Phosphate mg/l	DO mg/l
Downstream	27/01/2023	13.1	7.27	1	2	0.037	0.01	0.03	9.85
Downstream	17/02/2023	12.7	7.33	1	1	0.039	0.01	0.03	10.71
Downstream	24/03/2023	14.8	7.16	1	1	0.062	0.04	0.06	9.31
Downstream	26/04/2023	15.4	7.09	1	1	0.09	0.02	0.06	9.39
Downstream	26/05/2023	12.3	7.17	1	1	0.06	0.01	0.02	8.64
Downstream	19/06/2023	16.9	6.91	1	1	0.028	0.01	0.01	8.64
Downstream	24/07/2023	19.6	7.07	1	1	0.022	0.01	0.01	8.59
Downstream	18/08/2023	19.6	7.28	1	1	0.047	0.01	0.02	8.27
Downstream	25/09/2023	15.8	7.29	1	1	0.036	0.01	0.03	8.63
Downstream	27/10/2023	11.1	7.74	1	1	0.041	0.01	0.03	8.44
Downstream	27/11/2023	9.8	7.93	1	1	0.057	0.01	0.05	8.93
Downstream	13/12/2023	7.6	7.14	1	1	0.04	0.02	0.03	9.99
	Mean	**14.06**	**7.28**	**1.00**	**1.08**	**0.05**	**0.014**	**0.032**	**9.12**
	95%ile	**19.60**	**7.83**	**1.00**	**1.45**	**0.07**	**0.029**	**0.060**	**10.31**

Note: Where the concentration in the result is less than the limit of detection (LOD), a value of LOD/sqrt(2) was used in calculating the mean and 95%ile concentrations.