

# Annual Environmental Report

2022



Edenderry

D0110-01

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# 1 EXECUTIVE SUMMARY AND INTRODUCTION TO THE 2022 AER

This Annual Environmental Report has been prepared for D0110-01, Edenderry, in Offaly 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 2022.

## 1.2 TREATMENT SUMMARY

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

- Edenderry WWTP with a Plant Capacity PE of 9800, 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
TPEFF2500D0110SW001	Edenderry WWTP	Treated	Non-Compliant	Suspended Solids mg/l Total Phosphorus (as P) 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 EDENDERRY WWTP - TREATED DISCHARGE

#### 2.1.1 INFLUENT MONITORING SUMMARY - EDENDERRY 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
Ammonia-Total (as N) mg/l	12	35	24
BOD, 5 days with Inhibition (Carbonaceous) mg/l	12	730	170
ortho-Phosphate (as P) - unspecified mg/l	12	7.88	1.58
Total Phosphorus (as P) mg/l	12	34	5.98
Total Nitrogen mg/l	12	153	45
COD-Cr mg/l	12	6195	669
Suspended Solids mg/l	12	2070	327
pH pH units	12	7.80	7.47
Hydraulic Capacity	N/A	5380	2756

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 - TPEFF2500D0110SW001

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)
<b>COD-Cr mg/l</b>	125	250	N/A	13	N/A	N/A	23	Pass
<b>Suspended Solids mg/l</b>	30	75	N/A	13	1	1	57	Fail
<b>pH pH units</b>	6.00	9.00	N/A	13	N/A	N/A	7.64	Pass
<b>BOD, 5 days with Inhibition (Carbonaceous) mg/l</b>	7.00	14	N/A	13	N/A	N/A	1.51	Pass
<b>Total Phosphorus (as P) mg/l</b>	1.00	1.20	N/A	13	1	1	1.42	Fail
<b>Ammonia-Total (as N) mg/l</b>	0.500	1.00	N/A	13	N/A	N/A	0.122	Pass
<b>ortho-Phosphate (as P) - unspecified mg/l</b>	0.250	0.500	N/A	13	N/A	N/A	0.068	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)
<b>Conductivity @20°C µS/cm</b>	N/A	N/A	N/A	13	N/A	N/A	1229	
<b>Total Nitrogen mg/l</b>	N/A	N/A	N/A	13	N/A	N/A	12	
<b>Nitrite (as N) mg/l</b>	N/A	N/A	N/A	13	N/A	N/A	0.074	
<b>Nitrate (as N) mg/l</b>	N/A	N/A	N/A	13	N/A	N/A	7.89	

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):

**Inadequate Operational Procedures/Training**

### Significance of Results:

The WWTP is non compliant with the ELV's set in the Wastewater Discharge Licence. The impact on receiving waters is assessed further in Section 2.

## 2.1.3 AMBIENT MONITORING SUMMARY FOR THE TREATMENT PLANT DISCHARGE TPEFF2500D0110SW001

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
<b>Upstream</b>	263609, 234529	RS07B040200	No	No	No	No	Moderate
<b>Downstream</b>	261432, 234995	RS07B040300	No	No	No	No	Moderate

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
<b>BOD - 5 days (Total) mg/l</b>	RS07B040200	1.70	RS07B040300	2.26	1.50	36.9
<b>Ammonia-Total (as N) mg/l</b>	RS07B040200	0.111	RS07B040300	0.223	0.065	171.1
<b>ortho-Phosphate (as P) - unspecified mg/l</b>	RS07B040200	0.043	RS07B040300	0.072	0.035	83.4
<b>Suspended Solids mg/l</b>	RS07B040200	6.52	RS07B040300	8.72	N/A	



Parameter Name	Upstream Monitoring Point Location	Upstream Monitoring Point Annual Mean	Downstream Monitoring Point Location	Downstream Monitoring Point Annual Mean	EQS	% of EQS
<b>COD-Cr mg/l</b>	RS07B040200	41	RS07B040300	34	N/A	
<b>Chloride mg/l</b>	RS07B040200	22	RS07B040300	51	N/A	
<b>pH pH units</b>	RS07B040200	7.88	RS07B040300	7.92	N/A	
<b>Alkalinity-total (as CaCO3) mg/l</b>	RS07B040200	312	RS07B040300	300	N/A	
<b>Total Hardness (as CaCO3) mg/l</b>	RS07B040200	377	RS07B040300	368	N/A	
<b>Conductivity @20°C µS/cm</b>	RS07B040200	607	RS07B040300	662	N/A	
<b>Conductivity @25°C µS/cm</b>	RS07B040200	694	RS07B040300	772	N/A	
<b>Dissolved Oxygen % Saturation</b>	RS07B040200	89	RS07B040300	89	N/A	
<b>Nitrite (as N) mg/l</b>	RS07B040200	0.022	RS07B040300	0.046	N/A	
<b>Total Oxidised Nitrogen (as N) mg/l</b>	RS07B040200	2.50	RS07B040300	3.40	N/A	
<b>True Colour mg/litre Pt Co</b>	RS07B040200	58	RS07B040300	47	N/A	
<b>Temperature °C</b>	RS07B040200	10	RS07B040300	9.66	N/A	
<b>Nitrate (as N) mg/l</b>	RS07B040200	2.28	RS07B040300	2.99	N/A	

Parameter Name	Upstream Monitoring Point Location	Upstream Monitoring Point Annual Mean	Downstream Monitoring Point Location	Downstream Monitoring Point Annual Mean	EQS	% of EQS
<b>Total Phosphorus (as P) mg/l</b>	RS07B040200	0.104	RS07B040300	0.114	N/A	
<b>Total Nitrogen mg/l</b>	RS07B040200	3.09	RS07B040300	3.85	N/A	
<b>Nitrite (as N) µg/l</b>	RS07B040200	23	RS07B040300	51	N/A	
<b>Dissolved Oxygen mg/l</b>	RS07B040200	10	RS07B040300	10	N/A	

### Significance of Results:

The WWTP discharge was not compliant with the ELV's set in the wastewater discharge licence for the following: Suspended Solids mg/l, Total Phosphorus (as P) 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, Ammonia & Ortho-P 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.

As per the 3rd Cycle Draft Boyne Catchment Report (HA 07), the significant pressures on the Boyne\_020 waterbody are Agriculture, Domestic Waste Water & Hydromorphology. The Edenderry agglomeration although listed on Cycle 2, is not listed as a significant pressure in the Cycle 3 report.

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 - EDENDERRY WWTP

### 2.1.4.1 Treatment Efficiency Report - Edenderry 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	160016	2557	98
COD	630487	38266	94
TN	42048	19880	53
TP	5637	2397	57
SS	308012	96371	69

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

### 2.1.4.2 Treatment Capacity Report Summary - Edenderry 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.

Edenderry WWTP	
Peak Hydraulic Capacity (m <sup>3</sup> /day) - As Constructed	6413
DWF to the Treatment Plant (m <sup>3</sup> /day)	2138
Current Hydraulic Loading - annual max (m <sup>3</sup> /day)	5380

Edenderry WWTP	
Average Hydraulic loading to the Treatment Plant (m <sup>3</sup> /day)	2756
Organic Capacity (PE) - As Constructed	9800
Organic Capacity (PE) - Collected Load (peak week) <sup>Note1</sup>	9581
Organic Capacity (PE) - Remaining	219
Will the capacity be exceeded in the next three years? (Yes/No)	Yes

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 - EDENDERRY 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)
<b>There is no Sludge and Other Input data for the Treatment Plant included in the AER.</b>							

## 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
<b>There were no relevant environmental complaints in 2022.</b>			

### 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	No. of incident occurrences	Recurring (Y/N)	Closed (Y/N)
<b>Abatement Equipment offline</b>	Plant or equipment breakdown at WWTP	1	No	Yes
<b>Abatement Equipment offline</b>	Plant or equipment breakdown at WWTP	1	No	Yes
<b>Abatement Equipment offline</b>	Plant or equipment breakdown at WWTP	1	No	Yes

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	No	Yes
Abatement Equipment offline	Plant or equipment breakdown at WWTP	1	No	Yes
Abatement Equipment offline	Plant or equipment breakdown at WWTP	1	No	Yes
Abatement Equipment offline	Plant or equipment breakdown at WWTP	1	No	Yes
Abatement Equipment offline	EO caused by pump failure	1	No	No
Abatement Equipment offline	Plant or equipment breakdown at WWTP	1	No	No
Abatement Equipment offline	Inadequate Operational Procedures / Training	1	No	No
Abatement Equipment offline	Dosing pump failure or maintenance at WWTP	1	No	Yes
Breach of ELV	Inadequate Operational Procedures / Training	1	No	No

### 3.2.2 SUMMARY OF OVERALL INCIDENTS

Question	Answer
Number of Incidents in 2022	13
Number of Incidents reported to the EPA via EDEN in 2022	13
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 2022 (No. of events)	Total volume discharged in 2022 (m <sup>3</sup> )	Monitoring Status
SW3	262648 234134	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
SW4	261804 231548	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
SW002	263508 233264	Yes	TBC	Meeting Criteria	Unknown	Unknown	TBC
TBC	263168 233337	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
TBC	262648 234134	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	TBC

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 monitored SWOs in the agglomeration in the year (m <sup>3</sup> )?	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?	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
<b>D0110-SIP:01</b>	Decommissioning of SW2	C	01/07/2010	Yes	Works Completed		
<b>D0110-SIP:02</b>	Discharge to cease: SW2 to Boyne River	A	31/05/2010	Yes	Works Completed		



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
<b>D0110-SIP:03</b>	Installation of additional 600m3 of storm water storage tanks at the inlet of the works (SW3)	C	01/01/2014	Yes	Works Completed		
<b>D0110-SIP:04</b>	Relocation of effluent sampling points	C	01/01/2011	Yes	Works Completed		

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
<b>No additional improvements planned at this time.</b>				

#### 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

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
Priority Substances Assessment	Yes	2014	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?	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	N/A

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

Date: 27/02/2023

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

Acting Head of Environmental Regulation.

## 7 APPENDIX

There are no Appendices included.