

# Annual Environmental Report

2023



Fenagh

D0246-01

## **CONTENTS**

### **1 EXECUTIVE SUMMARY AND INTRODUCTION TO THE 2023 AER**

- 1.1 ANNUAL STATEMENT OF MEASURES
- 1.2 TREATMENT SUMMARY
- 1.3 ELV OVERVIEW
- 1.4 LICENSE SPECIFIC REPORT INCLUDED IN AER

### **2 TREATMENT PLANT PERFORMANCE AND IMPACT SUMMARY**

- 2.1 FENAGH (CARLOW) WWTP - TREATED DISCHARGE
  - 2.1.1 INFLUENT SUMMARY - FENAGH (CARLOW) WWTP
  - 2.1.2 EFFLUENT MONITORING SUMMARY - FENAGH (CARLOW) WWTP -
  - 2.1.3 AMBIENT MONITORING SUMMARY FOR THE TREATMENT PLANT DISCHARGE -
  - 2.1.4 OPERATIONAL REPORTS SUMMARY FOR FENAGH (CARLOW) WWTP
  - 2.1.5 SLUDGE/OTHER INPUTS TO FENAGH (CARLOW) WWTP

### **3 COMPLAINTS AND INCIDENTS**

- 3.1 COMPLAINTS SUMMARY
- 3.2 REPORTED INCIDENTS SUMMARY
  - 3.2.1 SUMMARY OF INCIDENTS
  - 3.2.2 SUMMARY OF OVERALL INCIDENTS

### **4 INFRASTRUCTURAL ASSESSMENT AND PROGRAMME OF IMPROVEMENTS**

- 4.1 STORM WATER OVERFLOW IDENTIFICATION AND INSPECTION REPORT
  - 4.1.1 SWO IDENTIFICATION AND INSPECTION SUMMARY REPORT
- 4.2 REPORT ON PROGRESS MADE AND PROPOSALS BEING DEVELOPED TO MEET THE IMPROVEMENT PROGRAMME REQUIREMENTS
  - 4.2.1 SPECIFIED IMPROVEMENT PROGRAMME SUMMARY
  - 4.2.2 IMPROVEMENT PROGRAMME SUMMARY
  - 4.2.3 SEWER INTEGRITY RISK ASSESSMENT

### **5 LICENCE SPECIFIC REPORTS**

### **6 CERTIFICATION AND SIGN OFF**

- 6.1 SUMMARY OF AER CONTENTS

### **7 APPENDIX**

# 1 EXECUTIVE SUMMARY AND INTRODUCTION TO THE 2023 AER

This Annual Environmental Report has been prepared for D0246-01, Fenagh, in Carlow 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)

- Fenagh (Carlow) WWTP with a Plant Capacity PE of 1500, 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
TPEFF0100D0246SW001	Fenagh (Carlow) WWTP	Treated	Non-Compliant	Temperature °C

## 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 FENAGH (CARLOW) WWTP - TREATED DISCHARGE

#### 2.1.1 INFLUENT MONITORING SUMMARY - FENAGH (CARLOW) 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	6	53	25
Total Phosphorus (as P) mg/l	6	15	7.05
BOD, 5 days with Inhibition (Carbonaceo mg/l	6	557	178
COD-Cr mg/l	6	1560	596
pH pH units	6	7.70	7.34
Suspended Solids mg/l	6	1553	352
ortho-Phosphate (as P) - unspecified mg/l	6	6.70	3.10
Total Nitrogen mg/l	6	60	45
Hydraulic Capacity	N/A	622	226

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 - TPEFF0100D0246SW001

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	6	N/A	N/A	23	Pass
<b>Temperature °C</b>	25	25	N/A	6	1	1	16	Fail
<b>BOD, 5 days with Inhibition (Carbonaceous) mg/l</b>	10	20	N/A	6	N/A	N/A	3.14	Pass
<b>Suspended Solids mg/l</b>	10	25	N/A	6	N/A	N/A	3.76	Pass
<b>pH pH units</b>	9	9	N/A	6	N/A	N/A	7.69	Pass
<b>Ammonia-Total (as N) mg/l</b>	2	2.4	N/A	6	N/A	N/A	0.140	Pass
<b>Total Phosphorus (as P) mg/l</b>	1	1.2	N/A	6	N/A	N/A	0.187	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)
ortho-Phosphate (as P) - unspecified mg/l	0.5	0.6	N/A	6	N/A	N/A	0.168	Pass
Conductivity @20°C µS/cm	N/A	N/A	N/A	6	N/A	N/A	618	
Total Nitrogen mg/l	N/A	N/A	N/A	6	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):

Refer to incident section of this report.

### Significance of Results:

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

## 2.1.3 AMBIENT MONITORING SUMMARY FOR THE TREATMENT PLANT DISCHARGE

### TPEFF0100D0246SW001

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	279283, 162857	RS14B050090	No	No	No	No	Moderate
Downstream	279292, 162933	RS14B050110	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
BOD - 5 days (Total) mg/l	RS14B050090	0.707	RS14B050110	0.707	1.50	0
Ammonia-Total (as N) mg/l	RS14B050090	0.098	RS14B050110	0.064	0.065	-52.8
ortho-Phosphate (as P) - unspecified mg/l	RS14B050090	0.016	RS14B050110	0.016	0.035	0
pH pH units	RS14B050090	7.53	RS14B050110	7.60	N/A	
Suspended Solids mg/l	RS14B050090	2.65	RS14B050110	2.84	N/A	
Total Nitrogen mg/l	RS14B050090	3.37	RS14B050110	3.53	N/A	
Total Phosphorus (as P) mg/l	RS14B050090	0.080	RS14B050110	0.117	N/A	
Dissolved Oxygen mg/l	RS14B050090	9.97	RS14B050110	9.69	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
COD-Cr mg/l	RS14B050090	14	RS14B050110	14	N/A	
Dissolved Oxygen % Saturation	RS14B050090	94	RS14B050110	91	N/A	
Temperature °C	RS14B050090	13	RS14B050110	13	N/A	

### Significance of Results:

The WWTP discharge was not compliant with the ELV's set in the wastewater discharge licence for the following: Temperature °C.

The ambient monitoring results do not meet the required EQS at the upstream monitoring location. 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 impact on the water quality.

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 - FENAGH (CARLOW) WWTP

### 2.1.4.1 Treatment Efficiency Report - Fenagh (Carlow) 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	47351	1796	96

Parameter	Influent mass loading (kg/year)	Effluent mass emission (kg/year)	Efficiency (% reduction of influent load)
cBOD	14156	246	98
SS	27991	295	99
TN	3564	1959	45
TP	561	15	97

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

#### 2.1.4.2 Treatment Capacity Report Summary - Fenagh (Carlow) 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.

Fenagh (Carlow) WWTP	
Peak Hydraulic Capacity (m <sup>3</sup> /day) - As Constructed	1035
DWF to the Treatment Plant (m <sup>3</sup> /day)	345
Current Hydraulic Loading - annual max (m <sup>3</sup> /day)	622
Average Hydraulic loading to the Treatment Plant (m <sup>3</sup> /day)	226
Organic Capacity (PE) - As Constructed	1500
Organic Capacity (PE) - Collected Load (peak week) <sup>Note1</sup>	504
Organic Capacity (PE) - Remaining	996
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 - FENAGH (CARLOW) 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 2023.</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	Recurring (Y/N)	Closed (Y/N)
<b>Abatement equipment off-line</b>	Plant or equipment breakdown at WWTP	No	Yes
<b>Abatement equipment off-line</b>	Adverse Weather	No	No
<b>Abatement equipment off-line</b>	Plant or equipment breakdown at WWTP	No	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

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	278034,163077	Yes	Low Significance	Meeting Criteria	Unknown	1361	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 wastewater discharge by metered SWOs during the year (m3)?	1361
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
<b>There are no Specified Improvement Programmes for this Agglomeration.</b>							

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	Included in this AER
<b>There is no Licence Specific Report Required in this AER Annual Review.</b>		



## 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	Additional SWOs
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?	No
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: 04/03/2024

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**

There are no Appendices included