

# Annual Environmental Report

## 2024



Carrigtwohill

D0044-01

## **CONTENTS**

### **1 EXECUTIVE SUMMARY AND INTRODUCTION TO THE 2024 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 CARRIGTOHILL WWTP - TREATED DISCHARGE
  - 2.1.1 INFLUENT SUMMARY - CARRIGTOHILL WWTP
  - 2.1.2 EFFLUENT MONITORING SUMMARY - CARRIGTOHILL WWTP -
  - 2.1.3 AMBIENT MONITORING SUMMARY FOR THE TREATMENT PLANT DISCHARGE -
  - 2.1.4 OPERATIONAL REPORTS SUMMARY FOR CARRIGTOHILL WWTP
  - 2.1.5 SLUDGE/OTHER INPUTS TO CARRIGTOHILL 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**

- 5.1 PRIORITY SUBSTANCES ASSESSMENT
- 5.2 SHELLFISH IMPACT ASSESSMENT

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

- 6.1 SUMMARY OF AER CONTENTS

### **7 APPENDIX**

- 7.1 AMBIENT MONITORING SUMMARY

# 1 EXECUTIVE SUMMARY AND INTRODUCTION TO THE 2024 AER

This Annual Environmental Report has been prepared for D0044-01, Carrigtwohill, 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.

There were no major capital or operational changes undertaken.

## 1.2 TREATMENT SUMMARY

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

- Carrigtohill WWTP with a Plant Capacity PE of 30000, the treatment type is 3NP - Tertiary N&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
TPEFF0500D0044SW001	Carrigtohill WWTP	Treated	Non-Compliant	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 CARRIGTOHILL WWTP - TREATED DISCHARGE

#### 2.1.1 INFLUENT MONITORING SUMMARY - CARRIGTOHILL 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	4	697	246
Total Nitrogen mg/l	4	24	13
BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l	4	170	56
Suspended Solids mg/l	4	363	133
Total Phosphorus (as P) mg/l	4	6.80	3.23
Hydraulic Capacity	N/A	13185	4877

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 - TPEFF0500D0044SW001

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	13	N/A	N/A	41	Pass
Suspended Solids mg/l	35	87.5	N/A	12	N/A	N/A	4.94	Pass
BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l	25	50	N/A	12	N/A	N/A	5.35	Pass
Total Oxidised Nitrogen (as N) mg/l	20	24	N/A	12	N/A	N/A	2.88	Pass
pH pH units	9	9	N/A	12	N/A	N/A	7.33	Pass
Ammonia-Total (as N) mg/l	5	6	N/A	12	N/A	N/A	0.899	Pass
Total Phosphorus (as P) mg/l	1	1.2	N/A	12	1	1	0.410	Fail
ortho-Phosphate (as P) - unspecified mg/l	0.5	0.6	N/A	12	N/A	N/A	0.147	Pass
E. Coli no./100mls	N/A	N/A	N/A	2	N/A	N/A	14159	

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>Total Nitrogen mg/l</b>	N/A	N/A	N/A	12	N/A	N/A	4.99	
<b>Enterococci (Intestinal) no./100mls</b>	N/A	N/A	N/A	2	N/A	N/A	4977	
<b>Faecal coliforms no./100mls</b>	N/A	N/A	N/A	2	N/A	N/A	1513	

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 Report

### 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 TPEFF0500D0044SW001

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	179127, 70773	TW05003153LE6001	No	No	No	Yes	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 WWTP discharge was not compliant with the ELV's set in the wastewater discharge licence for the following: Total Phosphorus (as P) mg/l.

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

The discharge from the wastewater treatment plant does not have an observable impact on the designated shellfish water quality.

The discharge from the wastewater treatment plant does not have an observable impact on the coastal/transitional water quality.

## 2.1.4 OPERATIONAL PERFORMANCE SUMMARY - CARRIGTOHILL WWTP

### 2.1.4.1 Treatment Efficiency Report - Carrigtohill 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	440588	77744	82
cBOD	99489	9823	90



Parameter	Influent mass loading (kg/year)	Effluent mass emission (kg/year)	Efficiency (% reduction of influent load)
TP	5783	768	87
TN	22642	9358	59
SS	237414	9269	96

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

#### **2.1.4.2 Treatment Capacity Report Summary - Carrigtohill 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.

Carrigtohill WWTP	
Peak Hydraulic Capacity (m <sup>3</sup> /day) - As Constructed	20250
DWF to the Treatment Plant (m <sup>3</sup> /day)	6750
Current Hydraulic Loading - annual max (m <sup>3</sup> /day)	13185
Average Hydraulic loading to the Treatment Plant (m <sup>3</sup> /day)	4877
Organic Capacity (PE) - As Constructed	30000
Organic Capacity (PE) - Collected Load (peak week) <sup>Note1</sup>	9293
Organic Capacity (PE) - Remaining	20707
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 - CARRIGTOHILL 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>Domestic /Septic Tank Sludge</b>	10785.35	Volume (m3)	30000	0.03	No	No	No
<b>Landfill Leachate (delivered by tanker)</b>	6293.86	Volume (m3)	30000	0.25	No	Yes	Yes
<b>Industrial / Commercial Sludge</b>	5063.3	Volume (m3)	30000	0.2	No	No	No

### 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 2024.			

#### 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	Plant or equipment breakdown at WWTP	No	Yes

### 3.2.2 SUMMARY OF OVERALL INCIDENTS

Question	Answer
Number of Incidents in 2024	1
Number of Incidents reported to the EPA via EDEN in 2024	1
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 2024 (No. of events)	Total volume discharged in 2024 (m3)	Monitoring Status
SW003	181277, 72257	Yes	Medium Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
SW01	179911, 72605	Yes	Medium Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
TBC	181731, 72678	No	Medium Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
TBC	181732, 72700	No	Medium Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
TBC	180642, 72279	No	Medium Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
TBC	180642, 72279	No	Medium Significance	Meeting Criteria	Unknown	Unknown	Not Monitored

The contents presented in this table include the most up to date information available at the time of writing. 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?	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>D0044-SIP:01</b>	Installation of new WWTP to meet ELVs as specified in Schedule A	C	31/12/2016	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>D0044-SIP:02</b>	Installation of storm water holding tank (SW003)	C	31/12/2016	Yes	Works Completed		
<b>D0044-SIP:03</b>	Installation of storm water holding tank (SW004)	C	31/12/2016	Yes	Works Completed		
<b>D0044-SIP:04</b>	Nutrient removal to meet ELVs as specified in Schedule A	C	31/12/2016	Yes	Works Completed		
<b>D0044-SIP:05</b>	SW002 Primary Discharge Point to be discontinued	C	31/12/2016	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	Included in this AER
D0044-01-Priority Substances Assessment	Yes	No
D0044-01-Shellfish Impact 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	N/A
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	No

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

Signed:    Date: 22/05/2025

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

### 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	
TW05003153LE6001	179127, 70773	TPEFF0500D0044SW001	No	No	No	Yes	Moderate

### Ambient Impact Assessment Table

Parameter Name	Downstream Monitoring Point Location	Downstream Monitoring Point Annual Mean	EQS (Mean)	%EQS
BOD mg/l	TW05003153LE6001	2.127	4.00	
Ortho-Phosphate (as P) mg/l	TW05003153LE6001	0.029	0.06	
Ammonia (as N) mg/l	TW05003153LE6001	0.093		
pH pH units	TW05003153LE6001	7.925		
Dissolved Oxygen %saturation	TW05003153LE6001	96.425	70 - 130	
E. Coli no. 100/mls	TW05003153LE6001	280.250		
Intestinal Enterococci no. 100/mls	TW05003153LE6001	883.367		
Faecal Coliforms no. 100/mls	TW05003153LE6001	226.000		
Temperature °C	TW05003153LE6001	16.750		
Total Oxidised Nitrogen (as N) mg/l	TW05003153LE6001	0.418		

# Ambient Data Tables

Monitored Entity	Station	Monitoring Point	Sample Date	Ammonia-Total (as N)	BOD - 5 days (Total)	Dissolved Oxygen	E. Coli	Enterococci (Intestinal)	Faecal coliforms	ortho-Phosphate (as P) - unspecified	pH	Temperature	Total Oxidised Nitrogen (as N)
				mg/l	mg/l	% saturation	no./100 mls	no./100mls	no./100mls	mg/l	mg /l	°C	mg/l
North Channel	TW05003153L E6001	Downstream	06/03/2024	<0.035	1.3	93.6	404	52	384	0.023	7.9	16.6	1.22
North Channel	TW05003153L E6001	Downstream	01/05/2024	0.052	4.4	107.2	75	<10	63	0.038	7.9	14.2	0.02
North Channel	TW05003153L E6001	Downstream	07/08/2024	0.097	2.1	88.3	624	52	364	0.023	8.1	19.4	0.05
North Channel	TW05003153L E6001	Downstream	02/10/2024	0.198	<1.00	96.6	18	>2420	93	0.033	7.8	16.8	0.38
Mean				0.093	2.127	96.425	280.250	883.367	226.000	0.029	7.925	16.750	0.418