

# Annual Environmental Report

2022



Newcastle West

D0108-01

## **CONTENTS**

### **1 EXECUTIVE SUMMARY AND INTRODUCTION TO THE 2022 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 NEWCASTLE WEST WWTP - TREATED DISCHARGE
  - 2.1.1 INFLUENT SUMMARY - NEWCASTLE WEST WWTP
  - 2.1.2 EFFLUENT MONITORING SUMMARY - NEWCASTLE WEST WWTP -
  - 2.1.3 AMBIENT MONITORING SUMMARY FOR THE TREATMENT PLANT DISCHARGE -
  - 2.1.4 OPERATIONAL REPORTS SUMMARY FOR NEWCASTLE WEST WWTP
  - 2.1.5 SLUDGE/OTHER INPUTS TO NEWCASTLE WEST 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

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

- 6.1 SUMMARY OF AER CONTENTS

### **7 APPENDIX**

# 1 EXECUTIVE SUMMARY AND INTRODUCTION TO THE 2022 AER

This Annual Environmental Report has been prepared for D0108-01, Newcastle West, in Limerick 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 was no major capital or operational changes undertaken

## 1.2 TREATMENT SUMMARY

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

- Newcastle West WWTP with a Plant Capacity PE of 9000, 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
TPEFF1900D0108SW001	Newcastle West WWTP	Treated	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 NEWCASTLE WEST WWTP - TREATED DISCHARGE

#### 2.1.1 INFLUENT MONITORING SUMMARY - NEWCASTLE WEST 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
Suspended Solids mg/l	12	372	155
Total Nitrogen mg/l	12	377	39
COD-Cr mg/l	12	815	287
Total Phosphorus (as P) mg/l	12	5.97	3.10
BOD, 5 days with Inhibition (Carbonaceo mg/l	12	219	93
Hydraulic Capacity	N/A	19824	4643

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 - TPEFF1900D0108SW001

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	12	N/A	N/A	25	Pass
<b>Suspended Solids mg/l</b>	35	87.5	N/A	12	N/A	N/A	8.68	Pass
<b>BOD, 5 days with inhibition (Carbonaceous) mg/l</b>	15	30	N/A	12	N/A	N/A	3.43	Pass
<b>pH pH units</b>	9	9	N/A	12	N/A	N/A	7.70	Pass
<b>Ammonia-Total (as N) mg/l</b>	3	3.6	N/A	12	N/A	N/A	0.358	Pass
<b>ortho-Phosphate (as P) - unspecified mg/l</b>	0.5	0.6	N/A	12	N/A	N/A	0.186	Pass
<b>Lead - unfiltered µg/l</b>	N/A	N/A	N/A	1	N/A	N/A	N/A	
<b>Total Oxidised Nitrogen (as N) mg/l</b>	N/A	N/A	N/A	10	N/A	N/A	10	

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	14	
Cadmium - unfiltered µg/l	N/A	N/A	N/A	1	N/A	N/A	N/A	
Nitrate (as N) mg/l	N/A	N/A	N/A	12	N/A	N/A	10	
Copper - unspecified µg/l	N/A	N/A	N/A	1	N/A	N/A	N/A	
Mercury - unfiltered µg/l	N/A	N/A	N/A	1	N/A	N/A	N/A	
Nitrite (as N) mg/l	N/A	N/A	N/A	12	N/A	N/A	0.499	
Total Phosphorus (as P) mg/l	N/A	N/A	N/A	12	N/A	N/A	0.406	

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.

### 2.1.3 AMBIENT MONITORING SUMMARY FOR THE TREATMENT PLANT DISCHARGE TPEFF1900D0108SW001

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	131300, 131392	RS24D020600	No	No	No	No	Poor
Downstream	130787, 135042	RS24D020800	No	Yes	No	No	Good

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	RS24D020600	1.30	RS24D020800	1.38	1.50	5.3
Ammonia-Total (as N) mg/l	RS24D020600	0.039	RS24D020800	0.039	0.065	0.9



Parameter Name	Upstream Monitoring Point Location	Upstream Monitoring Point Annual Mean	Downstream Monitoring Point Location	Downstream Monitoring Point Annual Mean	EQS	% of EQS
ortho-Phosphate (as P) - unspecified mg/l	RS24D020600	0.074	RS24D020800	0.085	0.035	32
Temperature °C	RS24D020600	10	RS24D020800	11	N/A	
Total Oxidised Nitrogen (as N) mg/l	RS24D020600	1.78	RS24D020800	1.51	N/A	
Nitrate (as N) mg/l	RS24D020600	1.76	RS24D020800	1.48	N/A	
Chloride mg/l	RS24D020600	26	RS24D020800	27	N/A	
Conductivity @25°C µS/cm	RS24D020600	475	RS24D020800	481	N/A	
True Colour mg/litre Pt Co	RS24D020600	28	RS24D020800	27	N/A	
pH pH units	RS24D020600	7.92	RS24D020800	8.02	N/A	
Dissolved Oxygen mg/l	RS24D020600	11	RS24D020800	11	N/A	
Dissolved Oxygen % Saturation	RS24D020600	98	RS24D020800	102	N/A	
Nitrite (as N) µg/l	RS24D020600	13	RS24D020800	14	N/A	
Alkalinity-total (as CaCO3) mg/l	RS24D020600	200	RS24D020800	201	N/A	
Total Hardness (as CaCO3) mg/l	RS24D020600	224	RS24D020800	221	N/A	

## Significance of Results:

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 BOD & Ortho-Phosphate, 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.

## 2.1.4 OPERATIONAL PERFORMANCE SUMMARY - NEWCASTLE WEST WWTP

### 2.1.4.1 Treatment Efficiency Report - Newcastle West 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)
<b>cBOD</b>	113593	4555	96
<b>COD</b>	351515	33632	90
<b>TP</b>	3797	538	86
<b>TN</b>	47191	18785	60
<b>SS</b>	189749	11516	94

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

### 2.1.4.2 Treatment Capacity Report Summary - Newcastle West 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.

Newcastle West WWTP	
Peak Hydraulic Capacity (m <sup>3</sup> /day) - As Constructed	10800
DWF to the Treatment Plant (m <sup>3</sup> /day)	2025
Current Hydraulic Loading - annual max (m <sup>3</sup> /day)	19824
Average Hydraulic loading to the Treatment Plant (m <sup>3</sup> /day)	4643
Organic Capacity (PE) - As Constructed	9000
Organic Capacity (PE) - Collected Load (peak week) <sup>Note1</sup>	8598
Organic Capacity (PE) - Remaining	402
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 - NEWCASTLE WEST 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>Waterworks Sludge</b>	4543	Volume (m3)	20191	1	Yes	Yes	Yes

## 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)
	Plant or equipment breakdown at WWTP	1	Yes	Yes
<b>Abatement Equipment offline</b>	Plant or equipment maintenance at WWTP	1	No	Yes
<b>Spillage</b>	Blocked Sewer	1	No	Yes

Incident Type	Cause	No. of incident occurrences	Recurring (Y/N)	Closed (Y/N)
Spillage	Broken Sewer Pipe	1	No	Yes
Uncontrolled release	Adverse Weather	1	Yes	Yes
Uncontrolled release	EO caused by power failure	1	No	Yes
Uncontrolled release	EO caused by power failure	1	No	Yes
Uncontrolled release	Adverse Weather	1	Yes	No

### 3.2.2 SUMMARY OF OVERALL INCIDENTS

Question	Answer
Number of Incidents in 2022	8
Number of Incidents reported to the EPA via EDEN in 2022	8
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 (m3)	Monitoring Status
<b>SW2</b>	128022,133604	Yes	Low Significance	Not Meeting Criteria	Unknown	Unknown	Not Monitored
<b>SW3</b>	128003,133624	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
<b>SW004</b>	130007,132860	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
<b>TBC</b>	128022,133604	No	Low Significance	Meeting Criteria	Unknown	Unknown	TBC
<b>TBC</b>	128003,133624	No	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 (m3)?	2081
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?	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
D0108-SIP:01	Installation of leachate drip feed tank, anoxic tank, storm water storage tank and sludge storage tank	C	31/12/2012	Yes	At Planning Stage		Expected Completion date



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>D0108-SIP:02</b>	SW1. See section 2.4 of attachment C.1 of application	C	31/12/2012	Yes	At Planning Stage		DAP to commence 2023. Completion data 2024+
<b>D0108-SIP:03</b>	SW2. See section 2.4 of attachment C.1 of application	C	31/12/2012	Yes	Works Completed		
<b>D0108-SIP:04</b>	SW3. See section 2.4 of attachment C.1 of application	C	31/12/2012	Yes	Works Completed		
<b>D0108-SIP:05</b>	Works necessary to meet ammonia, phosphorous and BOD emission limit standards	C	31/12/2012	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
<b>Priority Substances Assessment</b>	Yes	2016	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:

Signed:    Date: 24/04/2023

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