

Annual Environmental Report

2023



Newcastle West

D0108-01

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1 EXECUTIVE SUMMARY AND INTRODUCTION TO THE 2023 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
Total Phosphorus (as P) mg/l	12	7.30	3.64
BOD, 5 days with Inhibition (Carbonaceo mg/l	12	833	189
COD-Cr mg/l	12	1405	374
Total Nitrogen mg/l	12	50	25
Suspended Solids mg/l	12	684	181
Hydraulic Capacity	N/A	19756	5098

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)
COD-Cr mg/l	125	250	N/A	12	N/A	N/A	31	Pass
Suspended Solids mg/l	35	87.5	N/A	12	N/A	N/A	5.67	Pass
BOD, 5 days with inhibition (Carbonaceo mg/l)	15	30	N/A	12	N/A	N/A	4.46	Pass
pH pH units	9	9	N/A	12	N/A	N/A	7.62	Pass
Ammonia-Total (as N) mg/l	3	3.6	N/A	12	1	N/A	1.15	Pass
ortho-Phosphate (as P) - unspecified mg/l	0.5	0.6	N/A	12	N/A	N/A	0.171	Pass
Total Oxidised Nitrogen (as N) mg/l	N/A	N/A	N/A	12	N/A	N/A	12	
Total Phosphorus (as P) mg/l	N/A	N/A	N/A	12	N/A	N/A	0.343	

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)
Nitrite (as N) mg/l	N/A	N/A	N/A	12	N/A	N/A	0.592	
Nitrate (as N) mg/l	N/A	N/A	N/A	12	N/A	N/A	11	
Total Nitrogen mg/l	N/A	N/A	N/A	12	N/A	N/A	15	

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	Yes	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	1.07	RS24D020800	1.08	1.50	1
Ammonia-Total (as N) mg/l	RS24D020600	0.036	RS24D020800	0.035	0.065	-1.5
ortho-Phosphate (as P) - unspecified mg/l	RS24D020600	0.073	RS24D020800	0.072	0.035	-3.7
Chloride mg/l	RS24D020600	24	RS24D020800	23	N/A	
Dissolved Oxygen % O2	RS24D020600	100	RS24D020800	104	N/A	
True Colour mg/litre Pt Co	RS24D020600	26	RS24D020800	25	N/A	
Dissolved Oxygen % Saturation	RS24D020600	100	RS24D020800	98	N/A	
Total Hardness (as CaCO3) mg/l	RS24D020600	239	RS24D020800	281	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
pH pH units	RS24D020600	8.06	RS24D020800	8.13	N/A	
Total Nitrogen mg/l	RS24D020600	2.62	RS24D020800	2.33	N/A	
Total Oxidised Nitrogen (as N) mg/l	RS24D020600	1.58	RS24D020800	1.28	N/A	
Temperature °C	RS24D020600	9.59	RS24D020800	9.43	N/A	
Alkalinity-total (as CaCO3) mg/l	RS24D020600	221	RS24D020800	268	N/A	
Conductivity @25°C µS/cm	RS24D020600	502	RS24D020800	498	N/A	
Dissolved Oxygen mg/l	RS24D020600	11	RS24D020800	11	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, concentrations downstream of the effluent discharge is noted.

A deterioration in water quality has been identified, however it is not known if it 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)
TN	32892	25517	22
COD	493225	53000	89
cBOD	248461	7675	97
SS	238016	9760	96
TP	4802	591	88

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 ³ /day) - As Constructed	10800
DWF to the Treatment Plant (m ³ /day)	2025
Current Hydraulic Loading - annual max (m ³ /day)	19756

Newcastle West WWTP	
Average Hydraulic loading to the Treatment Plant (m ³ /day)	5098
Organic Capacity (PE) - As Constructed	9000
Organic Capacity (PE) - Collected Load (peak week) ^{Note1}	8635
Organic Capacity (PE) - Remaining	365
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)
Waterworks Sludge	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
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	Adverse Weather	Yes	Yes
Spillage	Shock load to the WWTP	No	Yes
Abatement equipment off-line	Plant or equipment breakdown at WWTP	No	Yes

Incident Type	Cause	Recurring (Y/N)	Closed (Y/N)
Uncontrolled release	Adverse Weather	No	No

3.2.2 SUMMARY OF OVERALL INCIDENTS

Question	Answer
Number of Incidents in 2023	4
Number of Incidents reported to the EPA via EDEN in 2023	4
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
SW2	128022,133604	Yes	Low Significance	Not Meeting Criteria	Unknown	Unknown	Not Monitored
SW3	128003,133624	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
SW004	130007,132860	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
TBC	128022,133604	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	TBC
TBC	128003,133624	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 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?	Yes
The SWO Assessment included the requirements of relevant of WWDL schedules?	No
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		

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:02	SW1. See section 2.4 of attachment C.1 of application	C	31/12/2012	Yes	At Planning Stage	2039	DAP to commence 2024
D0108-SIP:03	SW2. See section 2.4 of attachment C.1 of application	C	31/12/2012	Yes	Works Completed		
D0108-SIP:04	SW3. See section 2.4 of attachment C.1 of application	C	31/12/2012	Yes	Works Completed		
D0108-SIP:05	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
No additional improvements planned at this time.				

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
D0108-01-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	No

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

Signed: Date: 28/03/2024

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