Annual Environmental Report

2021

Newcastle West

D0108-01

CONTENTS

7.1 AMBIENT MONITORING SUMMARY

1 EXECUTIVE SUMMARY AND INTRODUCTION TO THE 2021 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.

Upgrade of sludge handling from belt press due in Q2 of 2022.

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
COD-Cr mg/l	12	777	230
Total Nitrogen mg/l	12	54	21
Suspended Solids mg/l	12	350	116
Total Phosphorus (as P) mg/l	12	8.68	2.89
BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l	12	189	82
Hydraulic Capacity	N/A	18584	6000

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	37	Pass
Suspended Solids mg/l	35	87.5	N/A	12	1	N/A	20	Pass
BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l	15	30	N/A	12	1	N/A	7.73	Pass
pH units	9.00	9.00	N/A	12	N/A	N/A	7.62	Pass
Ammonia-Total (as N) mg/l	3.00	3.60	N/A	12	N/A	N/A	0.431	Pass
ortho-Phosphate (as P) - unspecified mg/l	0.500	0.600	N/A	12	N/A	N/A	0.136	Pass
Nitrate (as N) mg/l	N/A	N/A	N/A	12	N/A	N/A	8.73	
Nitrite (as N) mg/l	N/A	N/A	N/A	12	N/A	N/A	0.497	
Total Phosphorus (as P) mg/l	N/A	N/A	N/A	12	N/A	N/A	0.300	

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	129938, 132738	RS24D020700	No	Yes	No	No	Moderate
Downstream	130787, 135042	RS24D020800	No	Yes	No	No	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 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.

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 - 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)
cBOD	134333	10590	92
SS	189816	27797	85
COD	377230	50254	87
TP	4734	412	91
TN	35002	N/A	N/A

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

NEWCASTLE WEST WWTP	
DWF to the Treatment Plant (m³/day)	2025
Current Hydraulic Loading - annual max (m³/day)	18584
Average Hydraulic loading to the Treatment Plant (m³/day)	6000
Organic Capacity (PE) - As Constructed	9000
Organic Capacity (PE) - Collected Load (peak week)[Note1]	8379
Organic Capacity (PE) - Remaining	621
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	3744	Volume (m3)	1000	1	No	Yes	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 2021.			

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 Irish Water 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	No	No
Abatement Equipment offline	Adverse Weather	1	Yes	Yes
Spillage	Other	1	No	Yes

Incident Type	Cause	No. of incident occurrences	Recurring (Y/N)	Closed (Y/N)
Uncontrolled release	Inadequate Infrastructure	1	Yes	Yes
Uncontrolled release	Adverse Weather	1	Yes	Yes
Uncontrolled release	Adverse Weather	1	Yes	No

3.2.2 SUMMARY OF OVERALL INCIDENTS

Question	Answer
Number of Incidents in 2021	6
Number of Incidents reported to the EPA via EDEN in 2021	6
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 2021 (No. of events)	Total volume discharged in 2021 (m3)	Monitoring Status
TBC	128021, 133603	No	Low	Meeting	Unknown	Unknown	Not Monitored
TBC	128003, 133624	No	Medium	Meeting	Unknown	Unknown	Not Monitored
SW004	130007, 132859	Yes	Low	Meeting	Unknown	Unknown	Not Monitored
SW2	128021, 133603	Yes	Low	Not Meeting	Unknown	Unknown	Not Monitored
SW3	128003, 133624	Yes	Medium	Meeting	Unknown	Unknown	Not Monitored

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 SWOs in the agglomeration in the year (m3)?	Unknown
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	Not Started		
D0108-SIP:02	SW1. See section 2.4 of attachment C.1 of application	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: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	Year included in AER	Included in this AER
Priority Substances Assessment	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
Has a Technical amendment/licence review application been submitted to the Agency by IW?	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:

Signed: Date: 13/05/2022

This AER has been produced by Irish Water's Environmental Information System (EIMS) and has been electronically signed off in that system for and on behalf of ,

Katherine Walshe

Acting Head of Environmental Regulation.

7 APPENDIX

Appendix
Appendix 7.1 - Ambient monitoring summary

Ambient Points WHERE THE AMBIENT POINTS ARE NOT IN EIMS AER – PLEASE COMPLETE THE BELOW TABLE

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**	
Upstream Newcastle West	131104, 131532	RS24D020600	N	N	N	N	Moderate
D4 Downstream Newcastle West	130787, 135042	RS24D020800	N	N	N	N	Moderate

WHERE THE AMBIENT DATA IS NOT IN EDEN/EIMS – PLEASE COMPLETE THE BELOW TABLE and PLEASE ALSO INLCUDE THE MONITORING DATA

- Ensure all parameters for Ambient Monitoring as listed in the WWDL are included (table below provides the most common – add or remove parameters where necessary)

Ambient Impact Assessment Table

Parameter Name	**Upstream Monitoring Point Location**	**Upstream Monitoring Point Annual Mean**	**Downstream Monitoring Point Location**	**Downstream Monitoring Point Annual Mean**	**EQS (95%Ile)**	**%EQS**
cBOD mg/l	RS24D020600	1.3	RS24D020800	1.3	2.6	0
Ortho-Phosphate (as P) mg/l	RS24D020600	0.069	RS24D020800	0.067	0.75	-0.3
Ammonia (as N) mg/l	RS24D020600	0.041	RS24D020800	0.040	0.14	-0.7
pH pH units	RS24D020600	8.1	RS24D020800	8.1		
Dissolved Oxygen %saturation or mg/l	RS24D020600	95.5	RS24D020800	98.3		
Temperature	RS24D020600	11.4	RS24D020800	11.4		

Newcastle West WWTP			Receiving Waters Designation (Yes/No)				Yes	Mean (mg/l)		
Ambient Monitoring Point from WWDL (or as agreed with EPA)	**Irish National Grid Reference (Easting, Northing)**	**EPA Feature Coding Tool code**	**Bathing Water**	**Drinking Water**	**FWPM**	**Shellfish**	**Current WFD Status**	**cBOD**	**o-Phosphate (as P)**	**Ammonia (as N)**
Upstream Monitoring Point	131104, 131532	RS24D020600					Moderate	1.3	0.069	0.041
Downstream Monitoring Point	130787, 135042	RS24D020800	No	No	No	No	Moderate	1.3	0.067	0.040
Difference								*0*	*-0.002*	*-0.019*
EQS								1.5	0.035	0.065
% of EQS								0%	-4.4%	-1.58%