Annual Environmental Report

2023

Mullingar

D0008-01

CONTENTS

1 EXECUTIVE SUMMARY AND INTRODUCTION TO THE 2023 AER

This Annual Environmental Report has been prepared for D0008-01, Mullingar, in Westmeath 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 capital works, significant changes or operational changes undertaken in 2023.

1.2 TREATMENT SUMMARY

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

- Mullingar WWTP with a Plant Capacity PE of 55000, 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
TPEFF3200D0008SW001	Mullingar 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 MULLINGAR WWTP - TREATED DISCHARGE

2.1.1 INFLUENT MONITORING SUMMARY - MULLINGAR 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
BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l	12	364	120
Total Nitrogen mg/l	12	81	40
Suspended Solids mg/l	12	1155	243
Ammonia-Total (as N) mg/l	12	43	20
ortho-Phosphate (as P) - unspecified mg/l	12	6.50	3.25
Total Phosphorus (as P) mg/l	12	16	5.79
COD-Cr mg/l	12	1284	468
pH pH units	12	7.90	7.51
Hydraulic Capacity	N/A	27658	9973

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 - TPEFF3200D0008SW001

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	50	N/A	N/A	15	Pass
Dissolved Oxygen % Saturation	50	40	N/A	32	N/A	N/A	91	Pass
Temperature °C	25	25	N/A	49	N/A	N/A	13	Pass
Suspended Solids mg/l	10	25	N/A	50	1	N/A	3.36	Pass
pH pH units	6	9	N/A	50	N/A	N/A	7.74	Pass
BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l	7	14	N/A	50	N/A	N/A	1.76	Pass
Ammonia-Total (as N) mg/l	0.4	0.8	N/A	50	N/A	N/A	0.066	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)
Total Phosphorus (as P) mg/l	0.3	0.36	N/A	50	N/A	N/A	0.105	Pass
ortho-Phosphate (as P) - unspecified mg/l	0.2	0.4	N/A	50	N/A	N/A	0.076	Pass
Dissolved Oxygen % O2	N/A	N/A	N/A	17	N/A	N/A	93	
Nitrate (as N) mg/l	N/A	N/A	N/A	50	N/A	N/A	3.60	
Dissolved Oxygen mg/l	N/A	N/A	N/A	48	N/A	N/A	9.51	
Nitrite (as N) mg/l	N/A	N/A	N/A	50	N/A	N/A	0.058	
Conductivity @20°C µS/cm	N/A	N/A	N/A	50	N/A	N/A	589	
Total Oxidised Nitrogen (as N) mg/l	N/A	N/A	N/A	49	N/A	N/A	3.62	
Zinc - filtered µg/l	N/A	N/A	N/A	16	N/A	N/A	35	
Total Nitrogen mg/l	N/A	N/A	N/A	50	N/A	N/A	4.68	

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 TPEFF3200D0008SW001

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 *	243787, 252380	RS25B090040	No	No	No	No	Poor
Downstream	241711, 250261	RS25B090100	No	No	No	No	Moderate

* U/S ambient location RS25B280390 was changed to RS25B090040 ca. 2022 due to Health and Safety/ access issues at original U/S location.

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 or 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 Ammonia concentration 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.

As per the 3rd Cycle Draft Lower Shannon (Brosna) Catchment Report (HA 25A), the significant pressures on the At Risk Brosna_030 waterbody are Forestry and Urban Runoff. The Mullingar WWTP is not listed as a significant pressure in the Cycle 3 report.

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 - MULLINGAR WWTP

2.1.4.1 Treatment Efficiency Report - Mullingar 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	393682	6344	98
TP	18925	376	98
COD	1529277	54344	96

Parameter	Influent mass loading (kg/year)	Effluent mass emission (kg/year)	Efficiency (% reduction of influent load)
TN	129554	16842	87
SS	795730	12079	98

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

2.1.4.2 Treatment Capacity Report Summary - Mullingar 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.

Mullingar WWTP	
Peak Hydraulic Capacity (m^3/day) - As Constructed	37125
DWF to the Treatment Plant (m^3/day)	12375
Current Hydraulic Loading - annual max (m^3/day)	27658
Average Hydraulic loading to the Treatment Plant (m^3/day)	9972.83
Organic Capacity (PE) - As Constructed	55000
Organic Capacity (PE) - Collected Load (peak week)[Note1]	27537
Organic Capacity (PE) - Remaining	27463
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 - MULLINGAR WWTP

'Other inputs' to the waste water treatment plant are summarised in the 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	14252.21	Weight (Tonnes)	173.5	0.39	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)
Abatement equipment off-line	Plant or equipment breakdown at WWTP	No	Yes
Abatement equipment off-line	Plant or equipment breakdown at WWTP	No	Yes
Abatement equipment off-line	Screen not operating	No	Yes

Incident Type	Cause	Recurring (Y/N)	Closed (Y/N)
Abatement equipment off-line	Plant or equipment breakdown at WWTP	No	Yes

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 (m^3)	Monitoring Status
SW13	244719 253996	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
TBC	243169 251927	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
SW2	243169 251927	Yes	Low Significance	Meeting Criteria	4	522	Monitored
SW4	243297 251750	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
SW6	243791 252368	Yes	Low Significance	Meeting Criteria	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 wastewater discharge by metered SWOs during the year (m^3)?	522
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?	No

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
D0008-SIP:01	WWTP and ancillary works to be constructed and commissioned	C	01/05/2009	Yes	Works Completed		
D0008-SIP:02	Construction of interceptor sewer and main lift pumping station	A	31/01/2011	Yes	Works Completed		
D0008-SIP:03	Discharge to cease: SW10 to River Brosna	A	31/01/2011	Yes	Works Completed		
D0008-SIP:04	Discharge to cease: SW11 to River Brosna	A	31/01/2011	Yes	Works Completed		
D0008-SIP:05	Discharge to cease: SW12 to River Brosna	A	31/01/2011	Yes	Works Completed		
D0008-SIP:06	Discharge to cease: SW3 to River Brosna	A	31/01/2011	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
D0008-SIP:07	Discharge to cease: SW5 to River Brosna	A	31/01/2011	Yes	Works Completed		
D0008-SIP:08	Discharge to cease: SW7 to River Brosna	A	31/01/2011	Yes	Works Completed		
D0008-SIP:09	Discharge to cease: SW8 to River Brosna	A	31/01/2011	Yes	Works Completed		
D0008-SIP:10	Discharge to cease: SW9 to River Brosna	C	01/05/2009	Yes	Works Completed		
D0008-SIP:11	Installation of main storm water storage tank (6000m3) & storm water storage tank at treatment plant (650m3)	C	31/01/2011	Yes	Works Completed		
D0008-SIP:12	Upgrade of storm water overflow SW13 to comply with DoE criteria	C	31/01/2011	Yes	Works Completed		
D0008-SIP:13	Upgrade of storm water overflow SW2 to comply with DoE criteria	C	31/01/2011	Yes	Works Completed		
D0008-SIP:14	Upgrade of storm water overflow SW4 to comply with DoE criteria	C	31/01/2011	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
D0008-SIP:15	Upgrade of storm water overflow SW6 to comply with DoE criteria	C	31/01/2011	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

N/A

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
Habitats Impact Assessment	Yes	No
Priority Substances Assessment	Yes	No
Toxicity of Final Effluent	Yes	No
Toxicity/Leachate Management	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?	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	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:

Date: 02/07/2024

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

Appendix
Appendix 7.1 - Ambient Monitoring Summary

Mullingar 2023 Ambient Monitoring Summary

Ambient Monitoring Point from WWDL (or as agreed with EPA)	Irish National Grid Reference (Easting, Northing)	EPA Feature Coding Tool code	Receiving Waters Designation (Yes/No)			
			Bathing Water	Drinking Water	FWPM	Shellfish
Upstream Monitoring Point	243787, 252380	RS25B090040	No	No	No	No
Downstream Monitoring Point	241711, 250261	RS25B090100	No	No	No	No

Note: U/S ambient location RS25B280390 was changed to RS25B090040 *ca.* 2022 due to Health and Safety/ access issues at original U/S location.

Ambient Monitoring Point from WWDL (or as agreed with EPA)	Current WFD Status	cBOD (Mean mgl/l)	o-Phosphate (as P) (Mean mg/l)	Ammonia (as N) (mean mg/l)
Upstream Monitoring Point	Poor	1.241	0.014	0.068
Downstream Monitoring Point	Moderate	1.179	0.008	0.071
Difference		-0.062	-0.006	0.004
EQS		1.500	0.035	0.065
% of EQS		-4.124%	-16.979%	5.433%

Mullingar 2023 Ambient Monitoring Data

Upstream Results											
Date		Ammonia (mg/l) *	Ortho P (mg/l) *	BOD (mg/l)*	D.O (mg/l)	TP (mg/l)	TN (mg/l)	Zinc (ug/l)	Faecal Coliforms	D.O (% Sat)	pH (pH Units)
11/01/2023	U/S	< 0.08	0.05	<2	10.12	0.05	1	16.2		89.1	7.7
18/01/2023	U/S								7100		
08/02/2023	U/S	< 0.08	0.02	< 3	10.75	< 0.05	1		900	87.2	7.7
01/03/2023	U/S	< 0.08	0.03	< 2	10.69	< 0.05	1			87.9	8
05/04/2023	U/S	< 0.08	< 0.02	< 3	9.02	< 0.05	1.4	12.1		84.5	7.9
03/05/2023	U/S	0.11	< 0.01	2	9.38	< 0.05	1.2			92.8	7.9
31/05/2023	U/S	0.086	< 0.01	1	8.38	< 0.05	< 1	37.9		91.1	7.9
07/06/2023	U/S	0.036	< 0.01	2	7.16	0.05	< 1	21.6	6000	73.3	7.9
19/07/2023	U/S	0.096	< 0.01	1	8.43	< 0.05	1.1	19.2	1600	87.2	7.8
26/07/2023	U/S	0.092	< 0.01	< 1	8.11	< 0.05	1			85.1	7.9
02/08/2023	U/S	0.098	< 0.01	< 1	8.5	0.06	1.3			84.3	7.7
30/08/2023	U/S	0.078	0.02	< 1	8.37	0.1	1.1			92.6	7.7
06/09/2023	U/S	0.049	< 0.01	1	7.49	< 0.05	1.9			79.2	7.8
04/10/2023	U/S	< 0.015	< 0.01	< 1	8.62	0.15	1.3	16.4	7000	85.2	7.7
01/11/2023	U/S	0.048	< 0.01	1	8.56	0.11	2.2	16		82	7.5
04/12/2023	U/S	0.084	< 0.01	< 1	11.2	< 0.05	1.3	14.5		91	8
Mean		**0.068**	**0.014**	**1.241**	**9.0**	**0.056**	**1.292**	**19.2**	**4,520.0**	**86.17**	**7.81**
95%ile		**0.102**	**0.036**	**2.122**	**10.9**	**0.122**	**2.020**	**32.2**	**7,080.0**	**92.66**	**8.00**

** Where the concentration in the result is less than the limit of detection (LOD), a value of LOD/sqrt(2) was used in calculating the mean and 95%ile concentrations.*

Downstream Results											
Date		Ammonia (mg/l) *	Ortho P (mg/l) *	BOD (mg/l) *	D.O (%Sat)	TP (mg/l) *	TN (mg/l)	Zinc (ug/l)	Faecal Coliforms (cfu/100ml)	D.O (mg/l)	pH (pH Units)
11/01/2023	D/S	<0.08	0.03	<2	83.1	0.09	2			9.34	7.5
18/01/2023	D/S								29000		
08/02/2023	D/S	<0.08	0.04	<3	79.9	0.08	1	31.8	400	9.82	7.7
01/03/2023	D/S	<0.08	0.02	<2	78.6	<0.05	3			9.76	7.7
05/04/2023	D/S	<0.08	<0.02	<3	77.2	<0.05	1.8	16.8		7.98	7.8
03/05/2023	D/S	0.13	<0.01	1	75.4	0.05	1.6			7.57	7.7
31/05/2023	D/S	<0.08	0.05	<1	72.5	<0.05	1.5	48.1		6.71	7.2
07/06/2023	D/S	0.057	<0.01	4	96.8	0.05	1.4	32.3	24000	9.47	7.7
19/07/2023	D/S	0.082	<0.01	1	74.7	0.07	1.7	22.9	260	7.24	7.7
26/07/2023	D/S	0.073	<0.01	<1	73.7	<0.05	1.7			7.01	7.7
02/08/2023	D/S	0.12	<0.01	<1	74.3	0.06	3.2			7.07	7.6
30/08/2023	D/S	0.099	<0.01	1	86.6	<0.05	1.7			8.26	7.6
06/09/2023	D/S	0.083	<0.01	1	65.3	<0.05	4.6			6.15	7.6
04/10/2023	D/S	0.04	<0.01	<1	70.7	0.06	1.7	26.4	21000	7.29	7.6
01/11/2023	D/S	0.041	<0.01	1	79	0.06	3.4	13.3		8.14	7.5
04/12/2023	D/S	0.059	<0.01	<1	85.2	0.06	1.5	21.9		10.59	7.9
Mean		**0.071**	**0.008**	**1.179**	**8.2**	**0.043**	**2.120**	**26.7**	**14932**	**78.61**	**7.63**
95%ile		**0.123**	**0.011**	**2.122**	**10.1**	**0.074**	**3.760**	**42.6**	**28000**	**90.17**	**7.83**

** Where the concentration in the result is less than the limit of detection (LOD), a value of LOD/sqrt(2) was used in calculating the mean and 95%ile concentrations.*