Annual Environmental Report

2021

Mallaranny

D0218-01

CONTENTS

1 EXECUTIVE SUMMARY AND INTRODUCTION TO THE 2021 AER

This Annual Environmental Report has been prepared for D0218-01, Mallaranny, in Mayo 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)

- MALLARANNY WWTP with a Plant Capacity PE of 1017, the treatment type is 2 - Secondary treatment

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
TPEFF2200D0218SW001	MALLARANNY WWTP	Treated	Non-Compliant	Total Nitrogen 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 MALLARANNY WWTP - TREATED DISCHARGE

2.1.1 INFLUENT MONITORING SUMMARY - MALLARANNY 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 Nitrogen mg/l	12	41	21
COD-Cr mg/l	12	1268	421
BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l	12	413	159
Suspended Solids mg/l	12	310	123
Total Phosphorus (as P) mg/l	12	6.90	3.36
Hydraulic Capacity	N/A	1108	76

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 - TPEFF2200D0218SW001

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	4	N/A	N/A	29	Pass
Suspended Solids mg/l	35	88	N/A	4	N/A	N/A	5.14	Pass
BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l	25	50	N/A	4	N/A	N/A	4.01	Pass
Temperature °C	25	25	N/A	4	N/A	N/A	15	Pass
Total Nitrogen mg/l	15	18	N/A	4	2	1	16	Fail
Ammonia-Total (as N) mg/l	10	12	N/A	4	N/A	N/A	0.239	Pass
pH units	9	9	N/A	4	N/A	N/A	7.25	Pass
Total Phosphorus (as P) mg/l	2	2.4	N/A	4	N/A	N/A	1.70	Pass
Conductivity @20°C µS/cm	N/A	N/A	N/A	4	N/A	N/A	420	
Copper - unspecified mg/l	N/A	N/A	N/A	2	N/A	N/A	0.005	

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)
Fats, Oils & Greases mg/l	N/A	N/A	N/A	4	N/A	N/A	7.15	
Hydrocarbons (unspecifed) µg/l	N/A	N/A	N/A	4	N/A	N/A	87	
Mercury - unspecified µg/l	N/A	N/A	N/A	2	N/A	N/A	0.036	
E. Coli MPN/100ml	N/A	N/A	N/A	4	N/A	N/A	8995	
Lead - unspecified µg/l	N/A	N/A	N/A	2	N/A	N/A	0.369	
Faecal coliforms cfu/100ml	N/A	N/A	N/A	4	N/A	N/A	9543	
Total Oxidised Nitrogen (as N) mg/l	N/A	N/A	N/A	4	N/A	N/A	12	
Zinc - unspecified µg/l	N/A	N/A	N/A	2	N/A	N/A	34	
Chromium - unspecified µg/l	N/A	N/A	N/A	2	N/A	N/A	0.402	
Nitrite (as N) mg/l	N/A	N/A	N/A	4	N/A	N/A	0.181	

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)
Enterococci (Intestinal) cfu/100ml	N/A	N/A	N/A	4	N/A	N/A	2214	
Arsenic - unspecified µg/l	N/A	N/A	N/A	2	N/A	N/A	0.403	
Nickel - unspecified µg/l	N/A	N/A	N/A	2	N/A	N/A	1.02	
Nitrate (as N) mg/l	N/A	N/A	N/A	4	N/A	N/A	12	
PCBs (Total) µg/l	N/A	N/A	N/A	2	N/A	N/A	0.004	
Cadmium - unspecified µg/l	N/A	N/A	N/A	2	N/A	N/A	0.354	
Phenols (Total) mg/l	N/A	N/A	N/A	4	N/A	N/A	0.005	
Silver - unspecified µg/l	N/A	N/A	N/A	2	N/A	N/A	0.495	

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):

Total Nitrogen.

Significance of Results:

The WWTP is non-compliant with the ELV's set in the Wastewater Discharge Licence. The impact on receiving water is assessed further in Section 2.

2.1.3 AMBIENT MONITORING SUMMARY FOR THE TREATMENT PLANT DISCHARGE TPEFF2200D0218SW001

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	83306, 295661	CW22005281CW1007	Yes	No	No	Yes	Good

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 not compliant with the ELV's set in the wastewater discharge licence for the following: Total Nitrogen mg/l.

The 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 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 coastal/transitional water quality.

2.1.4 OPERATIONAL PERFORMANCE SUMMARY - MALLARANNY WWTP

2.1.4.1 Treatment Efficiency Report - MALLARANNY 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	3690	3793	-2.8
COD	74046	6971	91
cBOD	27995	964	97
SS	21580	1234	94
TP	590	407	31

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

2.1.4.2 Treatment Capacity Report Summary - MALLARANNY 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.

MALLARANNY WWTP	
Peak Hydraulic Capacity (m^3/day) - As Constructed	609
DWF to the Treatment Plant (m^3/day)	203
Current Hydraulic Loading - annual max (m^3/day)	1108

MALLARANNY WWTP	
Average Hydraulic loading to the Treatment Plant (m³/day)	76
Organic Capacity (PE) - As Constructed	1017
Organic Capacity (PE) - Collected Load (peak week)[Note1]	679
Organic Capacity (PE) - Remaining	338
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 - MALLARANNY 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)
There is no Sludge and Other Input data for the Treatment Plant included in the AER.							

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)
Breach of ELV	Inadequate Operational Procedures / Training	1	No	No

3.2.2 SUMMARY OF OVERALL INCIDENTS

Question	Answer
Number of Incidents in 2021	1
Number of Incidents reported to the EPA via EDEN in 2021	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 2021 (No. of events)	Total volume discharged in 2021 (m3)	Monitoring Status
SW3	83782, 295819	Yes	Low	Not 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?	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
There are no Specified Improvement Programmes for this Agglomeration.							

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	2015	No
Shellfish Impact Assessment	Yes	2015	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?	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	N/A

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

Signed: Date: 27/04/2022

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

	COD mg/l	pH pH units	Conductivity uS/cm	TN mg/l	Sodium mg/l	Alkalinity mg/l CaCO3
13/04/21	53	8.3	44700	<0.5	9410.2	5353
06/08/21	58	8.2	43300	<0.5	9618	5141

	Chloride mg/l	Temp C	Iron ug/l	Potassium mg/l	Magnesium mg/l	Flouride mg/l
13/04/21	15249	15.7	11.9	376.6	1157.1	1.07
06/08/21	19852	15.2	<40	368	1207	0.826

	NH4-N mg/l	Calcium mg/l	Sulphate mg/l	NO2 mg/l	PO4-P mg/l
13/04/21	0.15	436.6	2410		
06/08/21	0.057	452	2600		

	N03 mg/l	E.coli MPN/100mls	Enterococci No/100mls	Faecal Coliforms cfu/100mls	Total Coliforms MPN/100mls
13/04/21	0.305	6	6	6	
06/08/21	0.007	490	1220	610	