Annual Environmental Report

2019

Mallow

D0052-01

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1 EXECUTIVE SUMMARY AND INTRODUCTION TO THE 2019 AER

This Annual Environmental Report has been prepared for D0052-01, Mallow, in Cork 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 major capital or operational changes undertaken during 2019. The Mallow Sewerage Scheme is included on Irish Water's current Capital Investment Plan. In relation to the Network Upgrade, the project includes for the separation of town centre sewers, elimination of CSO's, laying of new trunk sewer and associated works. Tenders have been received and assessed in relation to the proposed works. Planning Permission has been granted for the Treatment Plant Upgrade which includes for upgrading the existing treatment plant design capacity from 10,500 Population Equivalent to 22,000 Population Equivalent. The original WWTP had two treatment streams with an overall Design P.E. of 18,000. However only one treatment stream is operational which has a Design P.E of 10,500 therefore the current organic capacity (PE) is 10,500. The works also include for the provision of a new Pumping Station, Stormwater Holding Tank and associated rising mains, overflow and interconnecting pipework to be constructed at a site to the east of the existing Mallow Bridge PS.

1.2 TREATMENT SUMMARY

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

- Mallow WWTP with a Plant Capacity PE of 10500, 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
TPEFF0500D0052SW001	Mallow WWTP	Treated	Compliant	N/A

1.4 LICENCE SPECIFIC REPORTING INCLUDED IN AER

Assessment / Report	Included in AER
There are no Licence Specific Reports included in the AER.	

2 TREATMENT PLANT PERFORMANCE AND IMPACT SUMMARY

2.1 MALLOW WWTP - TREATED DISCHARGE

2.1.1 INFLUENT MONITORING SUMMARY - MALLOW 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	15.43	4.43
COD-Cr mg/l	12	701	323.26
BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l	12	298	145.79
Suspended Solids mg/l	1	180	180
Total Nitrogen mg/l	12	83.5	31.99
Hydraulic Capacity	N/A	11663	5829

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 - TPEFF0500D0052SW001

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 with Condition 2 Interpretation included	Annual Mean	Overall Compliance (Pass/Fail)
COD-Cr mg/l	125	250	N/A	12	N/A	N/A	21.81	Pass
BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l	25	50	N/A	12	N/A	N/A	3.83	Pass
Suspended Solids mg/l	25	62.5	N/A	12	N/A	N/A	7.52	Pass
pH pH units	9	9	N/A	12	N/A	N/A	7.75	Pass
Ammonia-Total (as N) mg/l	3	3.6	N/A	12	1	N/A	1.06	Pass
Total Phosphorus (as P) mg/l	2	2.4	N/A	12	N/A	N/A	0.23	Pass
ortho-Phosphate (as P) - unspecified mg/l	1.5	1.8	N/A	12	N/A	N/A	0.11	Pass
Tributyltin µg/l	N/A	N/A	N/A	2	N/A	N/A	0.02	
Total Nitrogen mg/l	N/A	N/A	N/A	12	N/A	N/A	8.53	

Notes:
1 – This represents the Emission Limit Values after the Interpretation provided for under Condition 2 of the licence is applied

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 TPEFF0500D0052SW001

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 Status
Upstream	157482, 98165	RS18B021690	No	No	Yes	No	Unassigned
Downstream	158083, 98036	RS18B021720	No	No	Yes	No	Unassigned

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	RS18B021690	1.9	RS18B021720	1.14	1.5	-50.7
Ammonia-Total (as N) mg/l	RS18B021690	0.04	RS18B021720	0.036	0.065	-6.9

Parameter Name	Upstream Monitoring Point Location	Upstream Monitoring Point Annual Mean	Downstream Monitoring Point Location	Downstream Monitoring Point Annual Mean	EQS	% of EQS
Orthophosphate (MRP) filtered (As P) mg/l	RS18B021690	0.016	RS18B021720	0.034	0.035	50.9
Dissolved Oxygen mg/l	RS18B021690	9.45	RS18B021720	10.54		
Dissolved Oxygen % O2	RS18B021690	94	RS18B021720	95.3		
Total Nitrogen mg/l	RS18B021690	1.85	RS18B021720	2.56		
Temperature °C	RS18B021690	13.75	RS18B021720	10.85		
Nitrite (as N) mg/l	RS18B021690	0.011	RS18B021720	0.006		
pH pH units	RS18B021690	7.75	RS18B021720	7.71		
Conductivity 20 C µS/cm	RS18B021690	202.5	RS18B021720	174.1		

Significance of Results:

The WWTP discharge was compliant with the ELV's set in the wastewater discharge licence.

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.

Based on ambient monitoring results a deterioration in Orthophosphate 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.

Other causes of deterioration in water quality in the area are: Diffuse Urban Point Sources & S4 Industries

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 - MALLOW WWTP

2.1.4.1 Treatment Efficiency Report - Mallow 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)
TP	9560	537	94
TN	69047	20264	71
cBOD	314667	9097	97
SS	332639	17863	95
COD	697710	51801	93

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

2.1.4.2 Treatment Capacity Report Summary - Mallow 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.

Mallow WWTP	
Peak Hydraulic Capacity (m^3/day) - As Constructed	13125
DWF to the Treatment Plant (m^3/day)	5250
Current Hydraulic Loading - annual max (m^3/day)	11663

Average Hydraulic loading to the Treatment Plant (m^3/day)	5829
Organic Capacity (PE) - As Constructed	10500
Organic Capacity (PE) - Collected Load (peak week)[Note1]	14398
Organic Capacity (PE) - Remaining	0
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 - MALLOW 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)
Domestic /Septic Tank Sludge	146.2	Volume (m3)	25717	0.48	Yes	Yes	No
Domestic /Septic Tank Sludge	24	Volume (m3)	256	0.01	Yes	Yes	No
Domestic /Septic Tank Sludge	103.5	Volume (m3)	1104	0.02	Yes	Yes	No

Domestic /Septic Tank Sludge	38.2	Volume (m3)	407	0.01	Yes	Yes	No

3 COMPLAINTS AND INCIDENTS

3.1 COMPLAINTS SUMMARY

A summary of complaints of an environmental nature is included below.

Number of Complaints	Nature of Complaint	Number Open Complaints	Number Closed Complaints
There were no relevant environmental complaints in 2019.			

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)
There were no reportable incidents in 2019.				

3.2.2 SUMMARY OF OVERALL INCIDENTS

Question	Answer
Number of Incidents in 2019	0
Number of Incidents reported to the EPA via EDEN in 2019	0
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	Irish Grid Ref.	Included in Schedule A4 of the WWDL	Significance of the overflow(High / Medium / Low)	Assessed against DoEHLG Criteria	No. of times activated in 2019 (No. of events)	Total volume discharged in 2019 (m3)	Monitoring Status
SW002	156245, 97959	Yes	Low	Not Meeting	Unknown	Unknown	Monitored
SW004	156440, 99586	Yes	Low	Not Meeting	Unknown	Unknown	Not Monitored
SW006	155487, 98937	Yes	Low	Not Meeting	Unknown	Unknown	Not Monitored
SW007	156229, 97992	Yes	Low	Not Meeting	Unknown	Unknown	Not Monitored
SW009	156023, 98019	Yes	Low	Not Meeting	Unknown	Unknown	Not Monitored
TBC	TBC	No	Unknown	Not yet Assessed	Unknown	Unknown	Unknown

WWDL Name / Code for Storm Water Overflow	Irish Grid Ref.	Included in Schedule A4 of the WWDL	Significance of the overflow(High / Medium / Low)	Assessed against DoEHLG Criteria	No. of times activated in 2019 (No. of events)	Total volume discharged in 2019 (m3)	Monitoring Status
TBC	TBC	No	Unknown	Not yet Assessed	Unknown	Unknown	Unknown
SW003	156251, 97599	Yes	Low	Not Meeting	Unknown	Unknown	Not Monitored
SW005	155076, 97856	Yes	Low	Not Meeting	Unknown	Unknown	Not Monitored
SW008	155530, 98572	Yes	Low	Not Meeting	Unknown	Unknown	Not Monitored

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?	Yes
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 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
D0052-SIP:01	Installation of overflow holding tank	C	01/06/2016	Yes	At Planning Stage	TBC	
D0052-SIP:03	SW002 to be discontinued	C	01/06/2016	Yes	At Planning Stage		
D0052-SIP:06	SW005 to be discontinued	C	01/06/2016	Yes	At Planning Stage		
D0052-SIP:07	SW006 to be discontinued	C	01/06/2016	Yes	At Planning Stage		
D0052-SIP:08	SW007 to be discontinued	C	01/06/2016	Yes	At Planning Stage		
D0052-SIP:09	SW008 to be discontinued	C	01/06/2016	Yes	At Planning Stage		
D0052-SIP:02	Sewerage network upgrade	C	01/06/2016	Yes	At Planning Stage		

D0052-SIP:04	SW003 to be discontinued	C	01/06/2016	Yes	At Planning Stage		
D0052-SIP:05	SW004 to be discontinued	C	01/06/2016	Yes	At Planning Stage		
D0052-SIP:10	SW009 to be discontinued	C	01/06/2016	Yes	At Planning Stage		

A summary of the status of any improvements identified by under Condition 5.2 is included below.

4.2.2 IMPROVEMENT PROGRAMME SUMMARY

Improvement Identifier	Improvement Description / or any Operational Improvements	Improvement Source	Expected Completion Date	Comments
There are no Improvements Programme for this Agglomeration.				

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 Table.

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 list of the various reports required for this agglomeration and a brief summary of their recommendations.

5.a Licence Specific Reports Summary Table

Licence Specific Report	Required by licence	Year included in AER	Included in this AER	Reference to relevant section of AER
Pearl Mussel Report	Yes	2014	No	
Priority Substances Assessment	Yes	2014	No	

5.1 PEARL MUSSEL REPORT

The Pearl Mussel Report t has been included in the AER 2014

5.2 PRIORITY SUBSTANCES ASSESSMENT

The Priority Substances Assessment Report has been included in the AER 2014

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	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: 18/05/2020

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

There are no Appendices included