Annual Environmental Report

2020

Fermoy

D0058-01

CONTENTS

1 EXECUTIVE SUMMARY AND INTRODUCTION TO THE 2020 AER

This Annual Environmental Report has been prepared for D0058-01, Fermoy, 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.

1.2 TREATMENT SUMMARY

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

- FERMOY WWTP - 2020 with a Plant Capacity PE of 11000, 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
TPEFF0500D0058SW001	FERMOY WWTP - 2020	Treated	Non-Compliant	**BOD, 5 days with Inhibition (Carbonaceo mg/l**

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 FERMOY WWTP - 2020 - TREATED DISCHARGE

2.1.1 INFLUENT MONITORING SUMMARY - FERMOY WWTP - 2020

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	2798	732.91
Total Phosphorus (as P) mg/l	12	4.81	2.17
BOD, 5 days with Inhibition (Carbonaceo mg/l	12	537	172.86
Total Nitrogen mg/l	12	52.3	23.92
Suspended Solids mg/l	12	1648	439.63
Hydraulic Capacity	N/A	13536	5004

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 section ‘Operational Performance Summary’.

2.1.2 EFFLUENT MONITORING SUMMARY - TPEFF0500D0058SW001

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	21.5	Pass
Suspended Solids mg/l	25	62.5	N/A	12	N/A	N/A	6.72	Pass
BOD, 5 days with Inhibition (Carbonaceo mg/l	25	50	N/A	12	N/A	N/A	2.82	Pass
pH pH units	9	9	N/A	12	N/A	N/A	7.73	Pass
Ammonia-Total (as N) mg/l	3	3.6	N/A	12	N/A	N/A	0.51	Pass
Total Phosphorus (as P) mg/l	2	2.4	N/A	2	N/A	N/A	0.11	Pass
ortho-Phosphate (as P) - unspecified mg/l	1.5	1.8	N/A	12	N/A	N/A	0.04	Pass
Conductivity @20°C µS/cm	N/A	N/A	N/A	12	N/A	N/A	1775.28	

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)
Total Nitrogen mg/l	N/A	N/A	N/A	12	N/A	N/A	7.84	

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

2.1.3 EFFLUENT MONITORING SUMMARY - TPEFF0500D0058SW004

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	23.38	Pass
Suspended Solids mg/l	25	62.5	N/A	12	2	N/A	14.25	Pass
BOD, 5 days with Inhibition (Carbonaceo mg/l	10	20	N/A	12	1	1	7.78	Fail
pH pH units	9	9	N/A	12	N/A	N/A	7.7	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 with Condition 2 Interpretation included	Annual Mean	Overall Compliance (Pass/Fail)
Total Phosphorus (as P) mg/l	0.5	0.6	N/A	12	N/A	N/A	0.043	Pass
Chloride mg/l	50,000	60,000	N/A	12	N/A	N/A	4746.83	Pass
Conductivity @20°C µS/cm	N/A	N/A	N/A	12	N/A	N/A	12995.8	Pass
Temperature °C	25	N/A	N/A	12	N/A	N/A	18.4	Pass
Sulphate mg/l	3,000	3,600	N/A	12	N/A	N/A	113.84	Pass

Cause of Exceedance(s):

The WWTP is non-compliant with the ELV's set in the Wastewater Discharge Licence. The non-compliance is due to the secondary discharge at SW004 which contains process wastewater from a non-domestic site and cooling water from a section 16 manufacturer as these discharge to the storm network at an area of the town. The impact on receiving waters is further assessed in section 2.1.4.

Significance of Results:

The WWTP is non-compliant with the ELV's set in the Wastewater Discharge Licence.

2.1.4 AMBIENT MONITORING SUMMARY FOR THE TREATMENT PLANT DISCHARGE TPEFF0500D0058SW001

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	182190, 98804	RS18B022260	No	No	Yes	No	Moderate
Upstream	182190, 98804	RS18B022230	No	No	Yes	No	Moderate
Downstream	182516, 99553	RS18B022300	No	No	Yes	No	Moderate

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	RS18B022230	1.03	RS18B022300	1.28	1.5	16.8
Ammonia-Total (as N) mg/l	RS18B022230	0.03	RS18B022300	0.03	0.07	4
ortho-Phosphate (as P) - unspecified mg/l	RS18B022230	0.02	RS18B022300	0.02	0.04	-10.5

Parameter Name	Upstream Monitoring Point Location	Upstream Monitoring Point Annual Mean	Downstream Monitoring Point Location	Downstream Monitoring Point Annual Mean	EQS	% of EQS
Orthophosphate (as P) - filtered mg/l	RS18B022230	0.04	RS18B022300	0.04	0.04	10.9
Dissolved Oxygen % O2	RS18B022230	97.82	RS18B022300	95.82		
Total Nitrogen mg/l	RS18B022230	2.6	RS18B022300	2.6		
Temperature °C	RS18B022230	12.8	RS18B022300	12.97		
Dissolved Oxygen % Saturation	RS18B022230	99.75	RS18B022300	97.95		
Nitrite (as N) mg/l	RS18B022230	0.01	RS18B022300	0.01		
Dissolved Oxygen mg/l	RS18B022230	10.46	RS18B022300	10.27		
pH pH units	RS18B022230	7.88	RS18B022300	7.82		
Conductivity @20°C µS/cm	RS18B022230	263.55	RS18B022300	249.18		

Significance of Results:

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

The ambient monitoring results does not 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 Ammonia - Total (as N), BOD - 5 Days (Total) and Ortho-Phosphate (MRP) Filtered (as P), concentrations downstream of the effluent discharge is noted.

The discharge from the wastewater treatment plant does have an observable negative impact on the Water Framework Directive status.

2.1.5 OPERATIONAL PERFORMANCE SUMMARY - FERMOY WWTP - 2020

2.1.5.1 Treatment Efficiency Report - FERMOY WWTP - 2020

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)
COD	1405893	45167	97
SS	843314	14111	98
cBOD	331586	5933	98
TN	45884	16468	64
TP	4166	228	95

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

2.1.5.2 Treatment Capacity Report Summary - FERMOY WWTP - 2020

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.

FERMOY WWTP - 2020	
Peak Hydraulic Capacity (m^3/day) - As Constructed	5692.5
DWF to the Treatment Plant (m^3/day)	2475
Current Hydraulic Loading - annual max (m^3/day)	13536

FERMOY WWTP - 2020	
Average Hydraulic loading to the Treatment Plant (m^3/day)	5004
Organic Capacity (PE) - As Constructed	11000
Organic Capacity (PE) - Collected Load (peak week)[Note1]	8663
Organic Capacity (PE) - Remaining	2337
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.

2.1.6 SLUDGE / OTHER INPUTS - FERMOY WWTP - 2020

'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)
Industrial / Commercial Sludge	4134.59	Volume (m3)	669597	17.43	No	Yes	No
Other	1791.16	Volume (m3)	13434	0.43	Yes	Yes	No
Domestic /Septic Tank Sludge	4363.55	Volume (m3)	27549	0.87	Yes	Yes	No

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	268	Volume (m3)	47141	1.49	Yes	Yes	No
Domestic /Septic Tank Sludge	57.84	Volume (m3)	365	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
2	Blocked Sewer	0	2

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	Other	1	Yes	No
Uncontrolled release	Blocked Sewer	1	No	Yes
Uncontrolled release	Blocked Sewer	1	No	Yes

3.2.2 SUMMARY OF OVERALL INCIDENTS

Question	Answer
Number of Incidents in 2020	3
Number of Incidents reported to the EPA via EDEN in 2020	3
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 2020 (No. of events)	Total volume discharged in 2020 (m3)	Monitoring Status
TBC	181446, 98769	Yes	Medium	Meeting	Unknown	Unknown	Not Monitored
SW003	181463, 98719	Yes	Medium	Meeting	Unknown	Unknown	Not Monitored
SW002a	182197, 98795	Yes	Medium	Meeting	Unknown	38576	Monitored
SW002b	182197, 98795	Yes	Medium	Meeting	Unknown	Unknown	Not Monitored
TBC	181086, 98501	Yes	Medium	Meeting	Unknown	Unknown	Not Monitored
SW005	181190, 98615	Yes	Medium	Meeting	Unknown	Unknown	Not Monitored

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 2020 (No. of events)	Total volume discharged in 2020 (m3)	Monitoring Status
SW006	181400, 98557	Yes	Medium	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?	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 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
D0058-SIP:01	Upgrading of Storm Water Overflows to comply with the criteria outlined in the DoECLG "Procedures and Criteria in relation to Storm Water Overflows, 1995"	C	01/01/2015	Yes	Works Completed		SWOs meet DEHLG criteria based on DAP model assessment

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	2015	No	
Priority Substances Assessment	Yes	2014	No	

5.1 PEARL MUSSEL REPORT

The Pearl Mussel Report Report has been included in the AER 2015

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: 09/07/2021

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