

Annual Environmental Report

2019



Kilmacthomas

D0275-01

CONTENTS

1 EXECUTIVE SUMMARY AND INTRODUCTION TO THE 2019 AER

- 1.1 ANNUAL STATEMENT OF MEASURES
- 1.2 TREATMENT SUMMARY
- 1.3 ELV OVERVIEW
- 1.4 LICENSE SPECIFIC REPORT INCLUDED IN AER

2 TREATMENT PLANT PERFORMANCE AND IMPACT SUMMARY

- 2.1 KILMACTHOMAS - TREATED DISCHARGE
 - 2.1.1 INFLUENT SUMMARY - KILMACTHOMAS
 - 2.1.2 EFFLUENT MONITORING SUMMARY - KILMACTHOMAS -
 - 2.1.3 AMBIENT MONITORING SUMMARY FOR THE TREATMENT PLANT DISCHARGE -
 - 2.1.4 OPERATIONAL REPORTS SUMMARY FOR KILMACTHOMAS
 - 2.1.5 SLUDGE/OTHER INPUTS TO KILMACTHOMAS

3 COMPLAINTS AND INCIDENTS

- 3.1 COMPLAINTS SUMMARY
- 3.2 REPORTED INCIDENTS SUMMARY
 - 3.2.1 SUMMARY OF INCIDENTS
 - 3.2.2 SUMMARY OF OVERALL INCIDENTS

4 INFRASTRUCTURAL ASSESSMENT AND PROGRAMME OF IMPROVEMENTS

- 4.1 STORM WATER OVERFLOW IDENTIFICATION AND INSPECTION REPORT
 - 4.1.1 SWO IDENTIFICATION AND INSPECTION SUMMARY REPORT
- 4.2 REPORT ON PROGRESS MADE AND PROPOSALS BEING DEVELOPED TO MEET THE IMPROVEMENT PROGRAMME REQUIREMENTS
 - 4.2.1 SPECIFIED IMPROVEMENT PROGRAMME SUMMARY
 - 4.2.2 IMPROVEMENT PROGRAMME SUMMARY
 - 4.2.3 SEWER INTEGRITY RISK ASSESSMENT

5 LICENCE SPECIFIC REPORTS

- 5.1 DRINKING WATER ABSTRACTION POINT RISK ASSESSMENT
- 5.2 PEARL MUSSEL REPORT
- 5.3 SMALL STREAM RISK SCORE ASSESSMENT

6 CERTIFICATION AND SIGN OFF

6.1 SUMMARY OF AER CONTENTS

7 APPENDIX

7.1 AMBIENT MONITORING SUMMARY

1 EXECUTIVE SUMMARY AND INTRODUCTION TO THE 2019 AER

This Annual Environmental Report has been prepared for D0275-01, Kilmacthomas, in Waterford 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.

None planned or identified.

1.2 TREATMENT SUMMARY

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

- Kilmacthomas with a Plant Capacity PE of 2110, 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
TPEFF3100D0275SW001	Kilmacthomas	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 KILMACTHOMAS - TREATED DISCHARGE

2.1.1 INFLUENT MONITORING SUMMARY - KILMACTHOMAS

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	1350	441.59
Total Phosphorus (as P) mg/l	12	10.93	4.06
BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l	12	599	184.38
Suspended Solids mg/l	12	1015	289.58
Hydraulic Capacity	N/A	3039	435

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'. 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 - TPEFF3100D0275SW001

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	12.63	Pass
Suspended Solids mg/l	35	87.5	N/A	12	N/A	N/A	5.4	Pass
BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l	25	50	N/A	12	N/A	N/A	2.21	Pass
pH pH units	9	9	N/A	12	N/A	N/A	6.95	Pass
Ammonia-Total (as N) mg/l	5	6	N/A	12	N/A	N/A	0.28	Pass
ortho-Phosphate (as P) - unspecified mg/l	2	2.4	N/A	12	N/A	N/A	0.21	Pass
Total Phosphorus (as P) mg/l	N/A	N/A	N/A	12	N/A	N/A	0.39	
Total Oxidised Nitrogen (as N) mg/l	N/A	N/A	N/A	12	N/A	N/A	5.38	

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)
ortho-Phosphate (as P) - unspecified mg/l	N/A	N/A	N/A	12	N/A	N/A	0.21	
Total Nitrogen mg/l	N/A	N/A	N/A	11	N/A	N/A	7.87	
Faecal coliforms no./100mls	N/A	N/A	N/A	6	N/A	N/A	39801.87	

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 TPEFF3100D0275SW001

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	239406, 106142	RS17M010180	No	No	Yes	No	Moderate
Downstream	239724, 105581	RS17M010200	No	No	Yes	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 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 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 - KILMACTHOMAS

2.1.4.1 Treatment Efficiency Report - Kilmacthomas

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	N/A	1009	N/A
COD	58898	1563	97

Parameter	Influent mass loading (kg/year)	Effluent mass emission (kg/year)	Efficiency (% reduction of influent load)
cBOD	24592	274	99
SS	38623	669	98
TP	541	49	91

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

2.1.4.2 Treatment Capacity Report Summary - Kilmacthomas

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.

Kilmacthomas	
Peak Hydraulic Capacity (m³/day) - As Constructed	1424.25
DWF to the Treatment Plant (m³/day)	474.75
Current Hydraulic Loading - annual max (m³/day)	3039
Average Hydraulic loading to the Treatment Plant (m³/day)	435
Organic Capacity (PE) - As Constructed	2110
Organic Capacity (PE) - Collected Load (peak week)^{Note1}	1173
Organic Capacity (PE) - Remaining	937
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 - KILMACTHOMAS

'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 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)
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	239659, 105650	Yes	Low	Meeting	Unknown	Unknown	Not Monitored

SWO Summary	
How much sewage was discharged via SWOs in the agglomeration in the year (m3)?	13244
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?	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 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/NAY)	Status of Works	Timeframe for Completing the Work	Comments
D0275-SIP:01	SW1 (Primary discharge point until provision of secondary WWTP)	A	31/10/2014	Yes	Works Completed		
D0275-SIP:02	SW2 - Provision of Storm Water Overflows to comply with the criteria outlined in the DoEHLG "Procedures and Criteria in relation to Storm Water Overflows, 1995".	C	31/10/2014	Yes	Works Completed		
D0275-SIP:03	Waste Water treatment plant and ancillary works	C	31/10/2014	Yes	Works Completed		

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
Drinking Water Abstraction Point Risk Assessment	Yes	2012	No	
Pearl Mussel Report	Yes	2011	No	
Small Stream Risk Score Assessment	Yes	2016	No	

5.1 DRINKING WATER ABSTRACTION POINT RISK ASSESSMENT

The Drinking Water Abstraction Point Risk Assessment Report has been included in the AER 2012

5.2 PEARL MUSSEL REPORT

The Pearl Mussel Report Report has been included in the AER 2011

5.3 SMALL STREAM RISK SCORE ASSESSMENT

The Small Stream Risk Score Assessment Report has been included in the AER 2016

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	Yes

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

Signed: Date: 16/03/2020

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

Appendix

Appendix 7.1 - Ambient monitoring summary

Ambient Monitoring Summary

Annual ambient monitoring results show that the discharge from the WWTP is having a low impact on the receiving waters and does not affect the EQS status of the River Mahon.

Table 1 Ambient Monitoring Results SW1u							
Parameter	SW0u	SW0u	SW0u	SW0u	SW0u	SW0u	EQS (River Water Body)
Date	19/02/2019	30/04/2019	18/06/2019	27/08/2019	15/10/2019	11/12/2019	-
pH	7.36	6.95	7.06	7.45	6.98	7.34	6.0 < pH < 9.0
DO%	106	93	113	103.3	101.8	101.7	120% > 95%ile > 80%
Temp	7.9	9.9	12.4	14.3	11.6	7.3	
BOD	0.5	0.5	1	0.5	1	0.5	High Status ≤1.3 Good Status ≤1.5
Orthophosphate (as P)	0.033	0.013	0.039	0.05	0.03	0.01	High Status ≤0.025 Good Status ≤0.035
Total Nitrogen (as N)	5.3	1.1	2.6	2.1	2.4	2.9	Not specified
Total Ammonia (as N)	0.02	0.005	0.08	0.05	0.005	0.005	High Status ≤0.040 Good Status ≤0.065

Table 2 Ambient Monitoring Results SW1d							
Parameter	SW0d	SW0d	SW0d	SW0d	SW0d	SW0d	EQS (River Water Body)
Date	19/02/2019	30/04/2019	18/06/2019	27/08/2019	15/10/2019	11/12/2019	-
pH	7.41	6.89	7.11	7.45	6.98	7.27	6.0 < pH < 9.0
DO%	106	91	113	100.3	102.2	99.9	120% > 95%ile > 80%
Temp	7.9	9.9	12.9	14.9	11.7	7.2	
BOD	0.5	1	3	0.5	0.5	0.5	High Status ≤1.3 Good Status ≤1.5
Orthophosphate (as P)	0.024	0.011	0.027	0.099	0.03	0.01	High Status ≤0.025 Good Status ≤0.035
Total Nitrogen (as N)	5.4	1.5	3.1	1.8	2.5	2.8	Not specified
Total Ammonia (as N)	0.01	0.005	0.06	0.17	0.005	0.005	High Status ≤0.040 Good Status ≤0.065

Table 3 Ambient Monitoring Results Up and Down Stream Annual Average Comparison

Parameter	pH	DO%	BOD	Orthophosphate (as P)	Total Nitrogen (as N)	Total Ammonia (as N)
SW1u [Annual Average]	7.19	103.13	0.67	0.03	2.73	0.03
SW1d [Annual Average]	7.19	102.07	1.00	0.03	2.85	0.04
Difference between SW1u & SW2d	-0.01	-1.07	0.33	0.00	0.12	0.02
EQS (River Water Body)	6.0 < pH <9.0	120% > 95%ile > 80%	High Status ≤1.3	High Status ≤0.025	Not specified	High Status ≤0.040
			Good Status ≤1.5	Good Status ≤0.035		Good Status ≤0.065