

Annual Environmental Report

2018



Enniskerry and Environs

D0088-01

TABLE OF CONTENTS

1 EXECUTIVE SUMMARY AND INTRODUCTION TO THE 2018 AER

- 1.1 LICENCE SPECIFIC REPORTING INCLUDED IN AER
- 1.2 TREATMENT TYPE
 - 1.2.1 ENNISKERRY AND ENVIRONS WWTP
- 1.3 ELV OVERVIEW
 - 1.3.1 ENNISKERRY AND ENVIRONS WWTP
- 1.4 SLUDGE REMOVAL

2 MONITORING REPORTS SUMMARY

- 2.1 SUMMARY REPORT ON MONTHLY INFLUENT MONITORING
 - 2.1.1 INFLUENT MONITORING SUMMARY - ENNISKERRY AND ENVIRONS WWTP
- 2.2 DISCHARGES FROM THE AGGLOMERATION
 - 2.2.1 EFFLUENT MONITORING SUMMARY - ENNISKERRY AND ENVIRONS WWTP
- 2.3 AMBIENT MONITORING SUMMARY
 - 2.3.1 AMBIENT MONITORING REPORT SUMMARY - ENNISKERRY AND ENVIRONS WWTP
 - 2.3.2 AMBIENT MONITORING PARAMETER MEAN (MG/L) - ENNISKERRY AND ENVIRONS WWTP

3 OPERATIONAL REPORTS SUMMARY

- 3.1 TREATMENT EFFICIENCY REPORT
 - 3.1.1 TREATMENT EFFICIENCY REPORT SUMMARY - ENNISKERRY AND ENVIRONS WWTP
- 3.2 TREATMENT CAPACITY REPORT SUMMARY
- 3.3 COMPLAINTS SUMMARY
- 3.4 REPORTED INCIDENTS SUMMARY
 - 3.4.1 SUMMARY OF INCIDENTS
 - 3.4.2 SUMMARY OF OVERALL INCIDENTS
- 3.5 SLUDGE / OTHER INPUTS TO THE WWTP

4 INFRASTRUCTURAL ASSESSMENTS AND PROGRAMME OF IMPROVEMENTS

- 4.1 STORM WATER OVERFLOW IDENTIFICATION AND INSPECTION REPORT
 - 4.1.1 SWO IDENTIFICATION
 - 4.1.2 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 SUMMARY

5 LICENCE SPECIFIC REPORTS

6 CERTIFICATION AND SIGN OFF

- 6.1 SUMMARY OF AER CONTENTS
- 6.2 DECLARATION BY IRISH WATER

7 APPENDIX

- 7.1 AMBIENT MONITORING SUMMARY

1 EXECUTIVE SUMMARY AND INTRODUCTION TO THE 2018 AER

This Annual Environmental Report has been prepared for D0088-01, Enniskerry and Environs, in Wicklow in accordance with the requirements of the wastewater discharge licence for the agglomeration. Specified reports are included as an appendix to the AER as follows:

1.1 Licence specific reporting included in AER

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

1.2 Treatment Type

The agglomeration is served by a wastewater treatment plant ENNISKERRY AND ENVIRONS WWTP with a Plant Capacity PE of 6000. The treatment process includes the following:

1.2.1 ENNISKERRY AND ENVIRONS WWTP

Treatment type	Yes / No	Details
Preliminary Treatment	Yes	Coarse and Fine Screening
Primary Treatment	No	
Secondary Treatment	Yes	Extended Aeration
Nutrient Removal	Yes	Phosphorus Removal
Tertiary Treatment	No	

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 2.2 Discharges from the agglomeration.

1.3 ELV Overview

1.3.1 ENNISKERRY AND ENVIRONS WWTP

Compliance Status	
Were all parameters compliant for ENNISKERRY AND ENVIRONS WWTP treatment plant	No
Where non compliant see Table 2.2.1 for details of parameters	

1.4 Sludge Removal

The amount of sludge removed from the wastewater treatment plant is shown below along with the transported destination of the sludge from the treatment plant.

Treatment Plant	Sludge type	Quantity	Unit	% Dry Solids	Destination
ENNISKERRY AND ENVIRONS WWTP	Cake Sludge	63.2	Weight (Tonnes)	13	Sludge Hub Centre, Knockrobin, Wicklow Town (Thermal Drying).
ENNISKERRY AND ENVIRONS WWTP	Cake Sludge	663.14	Weight (Tonnes)	17	H&L, Moyne, Derryville, Thurles, Co. Tipperary (Anaerobic Digestion)
ENNISKERRY AND ENVIRONS WWTP	Cake Sludge	19.16	Weight (Tonnes)	18	M&T Plant Hire, Composting, Ballyeden, Davidstown, Enniscorthy, Co. Wexford (Composting)

Annual Statement of Measures

The following works were completed in 2018: 1) 2 new Inlet Fine Screens (6mm perforated plate). 2) New Helical Screw Conveyor and Compactor for screenings, 3) New Grit Trap and Classifier. 4) New Grit Air Blower. 5) New Fine Bubble Diffused Air System in 4 no. aeration tanks (5 no. aeration blowers). 6) New RAS flow meter. 7) New WAS flow meter. 8) New Sludge Double Belt Press. 9) New Sludge Cake pump. 10) New Poly Dosing System. 11) New Sludge Belt Press Return Filtrate Pump Station. 12. Picket Fence Thickener (PFT) refurbished including new Central Stilling Drum. 13) New supernatant return line from PFT to RAS chamber. 14) New Activated Carbon Scrubber System for inlet works and belt press room. 15) Updated SCADA system.

2 MONITORING REPORTS SUMMARY

2.1 Summary report on monthly influent monitoring

A summary of influent monitoring for the treatment plant is presented in below. This monitoring is primarily undertaken in order to determine the overall efficiency of the plant in removing pollutants from the raw wastewater.

2.1.1 Influent Monitoring Summary - ENNISKERRY AND ENVIRONS WWTP

Parameters	Number of Samples	Annual Max	Annual Mean
COD-Cr	12	2540	478.97
Total Phosphorus (as P)	12	10.2	5.78
Suspended Solids	12	311	130.45
Total Nitrogen	12	48.3	35.23
BOD, 5 days with Inhibition (Carbonaceous BOD)	12	400	181.6
Hydraulic Capacity		3505	966

If other inputs in the form of sludge / leachate are added to the WWTP then these are included in Section 3.5 if applicable.

Significance of Results:

The annual mean hydraulic loading is less than the peak Treatment Plant Capacity as detailed further in Section 3.2. The annual maximum hydraulic loading is less than the peak Treatment Plant Capacity as detailed further in Section 3.2.

2.2 Discharges from the agglomeration

2.2.1 Effluent Monitoring Summary - ENNISKERRY AND ENVIRONS WWTP

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)	0	0	0	12	0	0	0.42	N/A
Temperature	25	0	0	3	0	0	5.79	Pass
COD-Cr	125	250	0	12	0	0	17.41	Pass
Total Nitrogen	0	0	0	12	0	0	12.98	N/A
pH	6 to 9	0	0	12	0	0	7.18	Pass
Nitrite (as N)	0	0	0	12	0	0	0.1	N/A
Nitrate (as N)	0	0	0	12	0	0	13.32	N/A
ortho-Phosphate (as P) - unspecified	1	1.2	0	12	1	1	0.33	Fail
BOD, 5 days with Inhibition (Carbonaceous BOD)	20	40	0	12	0	0	3.56	Pass
Suspended Solids	30	75	0	12	0	0	5.36	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)
Faecal coliforms	0	0	0	3	0	0	598.89	N/A
Ammonia-Total (as N)	3	3.6	0	12	0	0	0.07	Pass
Total Oxidised Nitrogen (as N)	0	0	0	12	0	0	12.5	N/A

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):

Unknown as all phosphorous removal facilities were operating normally on the day of sampling.

Significance of Results:

The WWTP was non-compliant with the ELV's set in the Wastewater Discharge Licence. There was one sample non-compliant with the Condition 2 ELV in relation to Ortho-P (mg/l). The impact on receiving waters is assessed further in Section 2.3.

2.3 Ambient monitoring summary

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.

2.3.1 Ambient Monitoring Report Summary - ENNISKERRY AND ENVIRONS WWTP

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	Code	Bathing Water	Drinking Water	FWPM	Shellfish	WFD Status
Upstream	324343, 217074	TPEFF3400D0088SW001	No	No	No	No	Good
Downstream	324354, 217111	TPEFF3400D0088SW001	No	No	No	No	Poor

2.3.2 Ambient Monitoring Parameter Summary - ENNISKERRY AND ENVIRONS WWTP

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.

The ambient monitoring results meet the required EQS. Where the ambient monitoring results meets the EQS this relates to the Oxygenation and Nutrient Conditions set out in the Surface Water Regulations 2009.

Based on the 2018 ambient monitoring results, it is considered that the discharge from the wastewater treatment plant does not have an observable negative impact on the water quality.

It is unknown if the Plant is having an impact on the WFD status.

3 OPERATIONAL REPORTS SUMMARY

3.1 Treatment Efficiency Report

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:

3.1.1 Treatment Efficiency Report Summary - ENNISKERRY AND ENVIRONS WWTP

Parameter	Influent mass loading (kg/year)	Effluent mass emission (kg/year)	Efficiency (% reduction of influent load)
TN	11090.21	4394.36	60.38
COD	150756.8	6430.15	95.73
cBOD	57159.88	1314.74	97.7
SS	41058.56	1980.33	95.18
TP	1820.78	142.91	92.15

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

3.2 Treatment Capacity Report Summary

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.

ENNISKERRY AND ENVIRONS WWTP	
Peak Hydraulic Capacity (m ³ /day) - As Constructed	4050
DWF to the Treatment Plant (m ³ /day)	350
Current Hydraulic Loading - annual max (m ³ /day)	3505
Average Hydraulic loading to the Treatment Plant (m ³ /day)	966
Organic Capacity (PE) - As Constructed	6000
Organic Capacity (PE) - Collected Load (peak week)	2501
Organic Capacity (PE) - Remaining	3499
Will the capacity be exceeded in the next three years? (Yes/No)	No

3.3 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 is no Complaint data included in the AER.			

3.4 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.

3.4.1 Summary of Incidents

Incident Type	Cause	No. of incident occurrences	Recurring (Y/N)	Closed (Y/N)
Non-compliance	Other	1	No	Yes

3.4.2 Summary of Overall Incidents

Question	Answer
Number of Incidents in 2018	1
Number of Incidents reported to the EPA via EDEN in 2018	1
Explanation of any discrepancies between the two numbers above	N/A

3.5 Sludge / Other inputs to the 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)
Other	7112	Volume (m ³)	82	2	No	No	No
Domestic /Septic Tank Sludge	14563	Volume (m ³)	177	4.1	Yes	No	No

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:

No Appendix Included.

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 2018 (No. of events)	Total volume discharged in 2018 (m ³)	Monitoring Status
SW002	322858, 217341	Yes	Low	Not Meeting			Not Monitored

4.1.2 Inspection Summary Report

SWO Summary	
How much sewage was discharged via SWOs in the agglomeration in the year (m ³)?	Not Monitored
Is each SWO identified as not meeting DoEHLG Guidance included in the Programme of Improvements?	No
The SWO Assessment included the requirements of relevant of WWDL schedules?	No
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)	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 improvements identified by under Condition 5.2 is included below.

4.2.2 Improvement Programme Summary

Improvement Identifier	Improvement Description	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
Priority Substances Assessment	Yes	2011	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 modifications to the existing WWDL?	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:

Date: 19/03/2019

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,

Eleanor Roche

Acting Head of Environmental Regulation.

7 APPENDIX

Appendix

Appendix 7.1 - Ambient Monitoring Summary

Enniskerry 2018 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	324343, 217074	RS10D010100				
Downstream Monitoring Point	324354, 217111	RS10D010120	No	No	No	No

Ambient Monitoring Point from WWDL (or as agreed with EPA)	Current WFD Status	cBOD	o-Phosphate (as P)	Ammonia (as N)
Upstream Monitoring Point	Good	1.100	0.016	0.019
Downstream Monitoring Point	Poor	1.250	0.037	0.026
<i>Difference</i>		0.150	0.021	0.007
EQS		2.600	0.075	0.140
% of EQS		5.769%	27.333%	4.821%

Significance of results

-) The WWTP was non-compliant with the Ortho-P ELV set in the wastewater discharge licence as detailed in Section 2.2. There was one Condition 2 ELV breach. All other Ortho-P effluent results were well below the Schedule A Ortho-P ELV.
-) Based on the above, it is considered that the discharge from the wastewater treatment plant does not have an observable negative impact on the water quality.
-) It is unknown if the Plant is having an impact on the WFD status.
-) It is noted that consistent achievement with the ELVs would benefit the quality of the receiving water

Enniskerry 2018 Ambient Monitoring Data

Date		Ammonia (mg/l) *	Ortho P (mg/l) *	BOD (mg/l)	D.O (% Sat)	D.O (mg/l)	pH (mg/l)
24/01/18	U/S	0.02	0.016	1.3	100	12	6.67
11/04/18	U/S	0.021	0.01	0.8	101	12	7.45
12/07/18	U/S	0.025	0.034	1.1	103.9	10.49	8.31
02/11/18	U/S	< 0.02	< 0.01	1.2	99	12.7	7.64
Mean		0.019	0.016	1.100	101.0	11.80	7.52
95%ile		0.024	0.031	1.285	103.5	12.60	8.21

Downstream Results							
Date		Ammonia (mg/l) *	Ortho P (mg/l)	BOD (mg/l)	D.O (% Sat)	D.O (mg/l)	pH (mg/l)
24/01/18	D/S	0.028	0.026	1.4	101	12.1	7.23
11/04/18	D/S	0.03	0.01	0.8	102	12	7.47
12/07/18	D/S	0.035	0.034	0.9	101.9		7.76
02/11/18	D/S	< 0.02	0.077	1.9	98	12.6	7.86
Mean		0.026	0.037	1.250	100.7	12.23	7.58
95%ile		0.034	0.071	1.825	102.0	12.55	7.85

* Where the concentration in the result is less than the limit of detection (LOD), a value of 50% of the LOD was used in calculating the mean and 95%ile concentrations.