Annual Environmental Report

2018

Tallow

D0273-01

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1 EXECUTIVE SUMMARY AND INTRODUCTION TO THE 2018 AER

This Annual Environmental Report has been prepared for D0273-01, Tallow, in Waterford 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 TALLOW WWTP with a Plant Capacity PE of 2186. The treatment process includes the following:

1.2.1 TALLOW WWTP

Treatment type	Yes / No	Details
Preliminary Treatment	Yes	Inlet Screen
Primary Treatment	No	
Secondary Treatment	Yes	SBR
Nutrient Removal	Yes	Ferric Dosing
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 TALLOW WWTP

Compliance Status	
Were all parameters compliant for TALLOW WWTP treatment plant	No
Where noncompliant 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
TALLOW WWTP	Liquid Sludge	1110	Volume (m3)	2.59	Cappoquin WWTP

Annual Statement of Measures

None undertaken or planned for the next three years.

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 - TALLOW WWTP

Parameters	Number of Samples	Annual Max	Annual Mean
BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l	12	823	407.9
Suspended Solids mg/l	12	805	327.57
Total Phosphorus (as P) mg/l	11	12.3	6.82
COD-Cr mg/l	12	1273	769.15
Hydraulic Capacity	0	6134	431

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 greater than the peak Treatment Plant Capacity as detailed further in Section 3.2. The design of the wastewater tretament plant allows for peak values and therefore the peak loads have not impacted on compliance with Emission Limit Values.

2.2 Discharges from the agglomeration

2.2.1 Effluent Monitoring Summary - TALLOW 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 exceedences	Number of with Condition 2 Interpretation included	Annual Mean	Overall Compliance (Pass/Fail)
Total Phosphorus (as P) mg/l	0	0	0	11	0	0	0.78	Pass
pH pH units	0	0	0	12	0	0	8.09	Pass
Total Oxidised Nitrogen (as N) mg/l	0	0	0	10	0	0	4.13	Pass
ortho-Phosphate (as P) - unspecified mg/l	1	1.2	0	9	1	1	0.77	Fail
Suspended Solids mg/l	35	87.5	0	12	0	0	5.11	Pass
Faecal coliforms no./100mls	0	0	0	3	0	0	944.3	Pass
BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l	25	50	0	12	0	0	2	Pass
Total Nitrogen mg/l	0	0	0	12	0	0	4.56	Pass
COD-Cr mg/l	125	250	0	12	0	0	15.55	Pass
Ammonia-Total (as N) mg/l	5	6	0	12	0	0	0.07	Pass

Notes:
1– This represents the Emission Limit Values after the Interpretation provided for under Condition 2 of the licence is applied
2 - For parameters where a mean ELV applies

Cause of Exceedance(s):

Ortho-P ELV exceedance is under investigation

Significance of Results:

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

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 - TALLOW 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	199887, 94325	TPEFF3100D0273SW001	No	No	No	No	Good
Downstream	200074, 94193	TPEFF3100D0273SW001	No	No	No	No	Good

2.3.2 Ambient Monitoring Parameter Summary - TALLOW WWTP

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
Cadmium - filtered µg/l	RS18B050800	0.02	RS18B051000	0.01		
Beryllium - filtered µg/l	RS18B050800	0.5	RS18B051000	0.5		
Calcium - filtered mg/l	RS18B050800	33.4	RS18B051000	33.4		
Barium - filtered µg/l	RS18B050800	12	RS18B051000	10.24		
COD-Cr mg/l	RS18B050800	8	RS18B051000	13.29		
Potassium - filtered mg/l	RS18B050800	2.18	RS18B051000	2.3		
Dissolved Oxygen % O2	RS18B050800	106	RS18B051000	85.86		
Molybdenum - filtered µg/l	RS18B050800	0.5	RS18B051000	0.5		
Nitrate (as N) mg/l	RS18B050800	4.24	RS18B051000	3.3		
Nickel - filtered µg/l	RS18B050800	0.62	RS18B051000	0.5		
Nitrate (as NO3) mg/l	RS18B050800	23.5	RS18B051000	22.1		
Dissolved Oxygen % Saturation	RS18B050800	97.6	RS18B051000	95		
BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l	RS18B050800	1.14	RS18B051000	0.86	2.6	-11
Copper - filtered µg/l	RS18B050800	0.86	RS18B051000	0.78		
Arsenic - filtered µg/l	RS18B050800	0.5	RS18B051000	0.5		

Parameter Name	Upstream Monitoring Point Location	Upstream Monitoring Point Annual Mean	Downstream Monitoring Point Location	Downstream Monitoring Point Annual Mean	EQS	% of EQS
Conductivity @25°C µS/cm	RS18B050800	276	RS18B051000	281.6		
Aluminium - filtered µg/l	RS18B050800	35.4	RS18B051000	38.2		
Suspended Solids mg/l	RS18B050800	4.6	RS18B051000	12.4		
Magnesium - filtered mg/l	RS18B050800	4.44	RS18B051000	4.64		
Selenium - filtered µg/l	RS18B050800	0.5	RS18B051000	0.5		
Dissolved Oxygen mg/l	RS18B050800	11.08	RS18B051000	9.59		
Iron - filtered µg/l	RS18B050800	87.8	RS18B051000	120		
Temperature °C	RS18B050800	11.53	RS18B051000	12.35		
Nitrite (as N) mg/l	RS18B050800	0.03	RS18B051000	0.02		
Total Hardness (as CaCO3) mg/l	RS18B050800	111.8	RS18B051000	112.8		
Antimony - filtered µg/l	RS18B050800	0.5	RS18B051000	0.5		
Cobalt - filtered µg/l	RS18B050800	0.5	RS18B051000	0.5		
Boron - filtered µg/l	RS18B050800	8.4	RS18B051000	9.6		
Manganese - filtered µg/l	RS18B050800	8.06	RS18B051000	13.8		
ortho-Phosphate (as P) - unspecified mg/l	RS18B050800	0.04	RS18B051000	0.03	0.08	-0.4

Parameter Name	Upstream Monitoring Point Location	Upstream Monitoring Point Annual Mean	Downstream Monitoring Point Location	Downstream Monitoring Point Annual Mean	EQS	% of EQS
Nitrite (as N) µg/l	RS18B050800	9.82	RS18B051000	10.12		
pH pH units	RS18B050800	7.72	RS18B051000	7.72		
Total Oxidised Nitrogen (as N) mg/l	RS18B050800	4.27	RS18B051000	3.53		
Zinc - filtered µg/l	RS18B050800	2.92	RS18B051000	5.14		
Thallium - filtered µg/l	RS18B050800	0.1	RS18B051000	0.1		
BOD - 5 days (Total) mg/l	RS18B050800	1.12	RS18B051000	1.66	2.6	20.8
Ammonia-Total (as NH4) mg/l	RS18B050800	0.01	RS18B051000	0.01		
Alkalinity-total (as CaCO3) mg/l	RS18B050800	85.2	RS18B051000	89.2		
Conductivity 20 C µS/cm	RS18B050800	335	RS18B051000	535.33		
Ammonia-Total (as N) mg/l	RS18B050800	0.02	RS18B051000	0.04	0.14	11.7
Chloride mg/l	RS18B050800	19.72	RS18B051000	21.58		
Chromium - filtered µg/l	RS18B050800	0.5	RS18B051000	0.5		
Lead - filtered µg/l	RS18B050800	0.1	RS18B051000	0.12		
Sodium - filtered mg/l	RS18B050800	11	RS18B051000	12.8		
Strontium - filtered µg/l	RS18B050800	43.8	RS18B051000	49.4		

Parameter Name	Upstream Monitoring Point Location	Upstream Monitoring Point Annual Mean	Downstream Monitoring Point Location	Downstream Monitoring Point Annual Mean	EQS	% of EQS
True Colour mg/litre Pt Co	RS18B050800	26.8	RS18B051000	33.2		
Uranium - filtered µg/l	RS18B050800	0.1	RS18B051000	0.2		
Total Nitrogen mg/l	RS18B050800	4.62	RS18B051000	2.95		
Vanadium - filtered µg/l	RS18B050800	0.5	RS18B051000	0.5		

Significance of Results:

The WWTP discharge was not compliant with the ELV's set in the wastewater discharge licence.

The parameters which exceeded the EQS and may be causing an are: None.

Any other know impacts: None. The EQS assessed relates to the Oxygenation and Nutrient Conditions set out in the Surface Water Regulations 2009, as amended.

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 - TALLOW WWTP

Parameter	Influent mass loading (kg/year)	Effluent mass emission (kg/year)	Efficiency (% reduction of influent load)	Comment
TP	1038.82	59.09	94.31	
TN		401.36		
SS	53015.79	449.87	99.15	
cBOD	66016.91	175.84	99.73	
COD	124485.26	1367.47	98.9	

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.

TALLOW WWTP	
Peak Hydraulic Capacity (m3/day) - As Constructed	1475.55

TALLOW WWTP	
DWF to the Treatment Plant (m3/day)	491.85
Current Hydraulic Loading - annual max (m3/day)	6134
Average Hydraulic loading to the Treatment Plant (m3/day)	431
Organic Capacity (PE) - As Constructed	2186
Organic Capacity (PE) - Collected Load (peak week)	1306
Organic Capacity (PE) - Remaining	880
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
2	Blocked Sewer	0	2

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)
Other	Other	1	No	Yes
Other	Shock load to WWTP	1	No	No
Other	Shock load to WWTP	1	No	No
Uncontrolled release	Other	1	No	No

3.4.2 Summary of Overall Incidents

Question	Answer
Number of Incidents in 2018	5
Number of Incidents reported to the EPA via EDEN in 2018	4
Explanation of any discrepancies between the two numbers above	One Ortho-P exceendance was not identified until February 2019. This has now been reported to the EPA.

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)?[3]	Is there a leachate/sludge acceptance procedure for the WWTP?	Is there a dedicated leachate/sludge acceptance facility for the WWTP?[2](Y/N)
There is no Sludge and Other Input data for the Treatment Plant included in the AER.							

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 (m3)	Monitoring Status
SW003	200030, 94211	Yes	Low	Compliant	61	27108	Monitored

4.1.2 Inspection Summary Report

SWO Summary	
How much sewage was discharged via SWOs in the agglomeration in the year (m3)?	27108
Is each SWO identified as non meeting DoEHLG Guidance included in the Programme of Improvements?	No
The SWO Assessment included the requirements of relevant of WWDL schedules?	Yes
Have the EPA been advised of any additional SWOs / charges 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
Completion of Waste Water collection system	C	29/06/2014	Yes	Works Completed		
Secondary waste water discharge (SW2) to be discontinued	C	29/06/2014	Yes	Works Completed		
Storm Water Overflows shall comply with the criteria outlined in the DoECLG "Procedures and Criteria in relation to Storm Water Overflows, 1995".	C	29/06/2014	Yes	Works Completed		
SW000 Primary discharge from Village septic tank, at Convent field, Townsparks East to be discontinued	A	29/06/2014	Yes	Works Completed		
SW002 Secondary Discharge from septic tank and reedbed, serving Woodview Estate, Townparks East to be discontinued.	A	29/06/2014	Yes	Works Completed		
Waste Water Treatment plant to include secondary treatment, nutrient removal and ancillary works	C	29/06/2014	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	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 (e.g. Appendix X).
There is no Licence Specific Report Required in this AER Annual Review.				

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	
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	
Have these processes commenced?	
Are all outstanding reports and assessments from previous AERs included as an appendix to this AER	No

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

Signed: Date: 29/03/2019

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

In the appendix include all the detailed or site specific reports that are relevant to the AER. Reports omitted from previous AERs should also be appended here.

Appendix
Appendix 7.1 - Ambient monitoring summary

Appendix. 7.2 Ambient Monitoring

D0273 – Tallow

Upstream Sampling is undertaken at Tallow Bridge [River Bride]

Table 7.2.1 - SW1 u/s @Tallow Bridge

EntityName	StationName	SampleDate	pH	Dissolved Oxygen (Measurement)	Dissolved Oxygen % Saturation	Temperature	BOD	Ortho-phosphate	Total Nitrogen	Ammonia (N)	Nitrates	Nitrites
Bride	RS18B050800	16-Jan-2018	7.25	10.9	91	6.9	< 1	0.032	6.7	< 0.01	3.5	0.03
Bride	RS18B050800	6-June-2018	7.62	10.7	111	17.4	< 2	0.028		< 0.01	4.5	0.02
Bride	RS18B050800	3-July-2018	7.57	9.4	101	19	< 1	0.055	5.7	0.05	4.7	< 0.01
Bride	RS18B050800	8-Aug-2018	7.77	11.4	119	17	< 1	0.016	1.1	< 0.01	4.2	0.08
Bride	RS18B050800	4-Sep-2018	7.8	11.9	116	14.7	< 1	0.015	2.4	0.02	4.1	0.025
Bride	RS18B050800	2-Oct-2018	7.38	11.1	105	13	4	0.02	8.2	< 0.01	4.5	0.04
Bride	RS18B050800	4-Dec-2018	7.6	11.4	99	7.1	< 2	0.094	3.6	0.01		0.031

The WWDL requires ambient sampling to be undertaken downstream of the primary discharge. Due to Health & Safety concerns in accessing the river bank close to the WWTP and the continual presence of livestock on the adjoining land, D/S sampling was undertaken circa 10km downstream at Camphire Bridge, this is the nearest bridge crossing downstream of Tallow.

Table 7.2.2 - SW1 d/s @Camphire Bridge

EntityName	StationName	SampleDate	pH	Dissolved Oxygen (Measurement)	Dissolved Oxygen % Saturation	Temperature	BOD	Ortho-phosphate	Total Nitrogen	Ammonia (N)	Nitrates	Nitrites
Camphire Bridge	RS18B051000	16/01/2018	7.25	10.4	87	7.2	< 1	0.03	6.2	< 0.01	3.6	0.05
Camphire Bridge	RS18B051000	06/06/2018	7.67	7.3	79	19	< 2	0.049	0.8	0.08	3.4	0.05
Camphire Bridge	RS18B051000	03/07/2018	8.05	9.7	111	21.8	< 1	0.035	3	0.06	3.3	< 0.01
Camphire Bridge	RS18B051000	08/08/2018	7.77	6.6	71	18.8	< 1	0.032	< 0.25	< 0.01	3.4	< 0.01
Camphire Bridge	RS18B051000	04/09/2018	7.66	7.7	79	16.7	< 1	0.019	2	0.04	2.4	0.011
Camphire Bridge	RS18B051000	02/10/2018	7.41	8.5	81	13.3	2	0.03	6.8	0.03	2.5	0.01
Camphire Bridge	RS18B051000	04/12/2018	7.48	10.6	93	7.7	< 2	0.054	1.7	0.01		0.027