Annual Environmental Report

2018

UISCE
ÉIREANN : IRISH
WATER

Ballyclough

D0441-01

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1 EXECUTIVE SUMMARY AND INTRODUCTION TO THE 2018 AER

This Annual Environmental Report has been prepared for D0441-01, Ballyclough, in Cork 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

1.2 Treatment Type

The agglomeration is served by a wastewater treatment plant Ballyclough WWTP with a Plant Capacity PE of 800. The treatment process includes the following:

1.2.1 Ballyclough WWTP

Treatment type	Yes / No	Details
Preliminary Treatment	Yes	Screening/grit removal
Primary Treatment	No	
Secondary Treatment	Yes	SBR
Nutrient Removal	Yes	Chemical dosing for 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 Ballyclough WWTP

Compliance Status	
Were all parameters compliant for Ballyclough 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
Ballyclough WWTP	Liquid Sludge	24	Volume (m3)	1	Ormonde Organics, Eras Eco, Youghal, Co. Cork
Ballyclough WWTP	Liquid Sludge	60.01	Volume (m3)	1	Ormonde Organics, Eras Eco, Youghal, Co. Cork and Portlaw, Co. Waterford.

Annual Statement of Measures

N/A

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 - Ballyclough WWTP

Parameters	Number of Samples	Annual Max	Annual Mean
Total Phosphorus (as P)	12	7.31	2.86
Total Nitrogen	12	91.5	32.4
BOD, 5 days with Inhibition (Carbonaceous BOD)	12	737	178.53
COD-Cr	12	1013	364.85
Suspended Solids	12	532	137.87
Hydraulic Capacity	0	220	72.54

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. 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 - Ballyclough 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)	0	0	0	12	0	0	0.39	Pass
Ammonia-Total (as N)	1	1.2	0	12	0	0	0.05	Pass
Total Nitrogen	0	0	0	12	0	0	11.6	Pass
BOD, 5 days with Inhibition (Carbonaceous BOD)	25	50	0	12	0	0	2.06	Pass
COD-Cr	125	250	0	12	0	0	15.99	Pass
pH	0	0	0	12	0	0	7.83	Pass
ortho-Phosphate (as P) - unspecified	0.5	0.6	0	12	3	2	0.3	Fail
Suspended Solids	25	62.5	0	12	1	0	5.78	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):

The first non-compliance was due to a breakdown of one of the ferric dosing pumps. The ferric sulphate dosing rate was adjusted to address the second Ortho-P exceedence. Subsequent results show the Ortho-P was in compliance.

Significance of Results:

The WWTP was non-compliant with the ELV's set in the Wastewater Discharge Licence. Two samples were non-compliant with the ELV's in relation to Ortho-P.

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 - Ballyclough 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	149499, 102000	TPEFF0500D0441SW001	No	No	Yes	No	Poor
Downstream	149274, 101745	TPEFF0500D0441SW001	No	No	Yes	No	Poor

2.3.2 Ambient Monitoring Parameter Summary - Ballyclough 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
Ammonia-Total (as N)	RS18B080100	0.03	RS18B080300	0.02	0.15	-12.9
Total Hardness (as CaCO3)	RS18B080100	306	RS18B080300			
True Colour	RS18B080100	10.5	RS18B080300			

Total Oxidised Nitrogen (as N)	RS18B080100	5.73	RS18B080300			
Nitrite (as N)	RS18B080100	2.09	RS18B080300	0.01		
ortho-Phosphate (as P) - unspecified	RS18B080100	0.02	RS18B080300		0.08	
Dissolved Oxygen	RS18B080100	54.44	RS18B080300	54.11		
Conductivity 20 C	RS18B080100	551	RS18B080300	540.25		
BOD - 5 days (Total)	RS18B080100	0.92	RS18B080300	0.8	2.6	-4.6
Orthophosphate (MRP) filtered (As P)	RS18B080100	0.03	RS18B080300	0.03		
Nitrate (as N)	RS18B080100	5.7	RS18B080300			
Conductivity @25°C	RS18B080100	605.5	RS18B080300			
pH	RS18B080100	8.21	RS18B080300	8.25		
Chloride	RS18B080100	23.78	RS18B080300			
Temperature	RS18B080100	10.73	RS18B080300	10.83		
Alkalinity-total (as CaCO3)	RS18B080100	253	RS18B080300			

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: N/A.

Any other know impacts: N/A

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 - Ballyclough WWTP

Parameter	Influent mass loading (kg/year)	Effluent mass emission (kg/year)	Efficiency (% reduction of influent load)	Comment
SS	3627.52	149.57	95.88	
COD	9599.32	413.83	95.69	
TP	75.36	9.99	86.74	
TN	852.43	300.27	64.77	
cBOD	4697.19	53.43	98.86	

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.

Ballyclough WWTP	
Peak Hydraulic Capacity (m3/day) - As Constructed	540

DWF to the Treatment Plant (m3/day)	180
Current Hydraulic Loading - annual max (m3/day)	220
Average Hydraulic loading to the Treatment Plant (m3/day)	72.54
Organic Capacity (PE) - As Constructed	800
Organic Capacity (PE) - Collected Load (peak week)	217
Organic Capacity (PE) - Remaining	583
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	Plant or equipment breakdown at WWTP	4	Yes	Yes
Non-compliance	Plant or Equipment Calibrationat WWTP	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	5
Explanation of any discrepancies between the two numbers above	

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
SW1	149328, 101798	No	Unknown	Non-compliant			Not Monitored

4.1.2 Inspection Summary Report

SWO Summary	
How much sewage was discharged via SWOs in the agglomeration in the year (m3)?	
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
Installation of chemical dosing for phosphorus removal	C	31/Dec/2013	Y	Complete		

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
D0441-IP:3	Installation of chemical dosing for phosphorus removal	Pearl Mussel Impact Assessment (Condition 4)		Completed
D0441-IP:4	Installation of chemical dosing for phosphorus removal	Incident Reduction		completed

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).
Pearl Mussel Report	Yes	2015	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	
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?	No
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: 26/02/2019

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

Ballyclough D0441-01

Ambient -Upstream

									Mean	95%ile
				Sample Code	2018/0174	2018/0688	2018/2117	2018/2488		
	EQS			Sample Date	1-Feb-2018	5-Apr-2018	22-Aug-2018	3-Oct-2018		
	Mean	95%ile	Frequency	Actual						
D.O % O_2	80%<95%ile<120%		4	4	96	102	95	100	98.250	101.7
Temperature C°	≤ 1.5 C° increase		4	4	7.4	8.9	13.6	13	10.725	13.51
pH	6 < pH < 9		4	4	7.9	8.2	8.2	8.3	8.150	8.285
BOD mg/L	≤ 1.5	≤ 2.6	4	4	0.3	0.9	0.5	1.6	0.825	1.495
Orthophosphate (P) mg/l	≤ 0.035	≤ 0.075	4	4	0.033	0.03	0.04	0.015	0.030	0.03895
Ammonia (N) mg/l	≤ 0.065	≤ 0.14	4	4	0.042	0.01	0.063	0.022	0.034	0.05985

Ambient -Downstream

									Mean	95%ile
				Sample Code	2018/0173	2018/0689	2018/2118	2018/2489		
	EQS			Sample Date	1-Feb-2018	5-Apr-2018	22-Aug-2018	3-Oct-2018		
	Mean	95%ile	Frequency	Actual						
D.O % O_2	80%<95%ile<120%		4	4	93	102	96	99	97.5	101.55
Temperature C°	≤ 1.5 C° increase		4	4	7	8.9	14.3	13.1	10.825	14.12
pH	6 < pH < 9		4	4	8	8	8.5	8.3	8.200	8.47
BOD mg/L	≤ 1.5	≤ 2.6	4	4	0.6	1	1.2	0.5	0.825	1.17
Orthophosphate (P) mg/l	≤ 0.035	≤ 0.075	4	4	0.031	0.022	0.012	0.026	0.023	0.03025
Ammonia (N) mg/l	≤ 0.065	≤ 0.14	4	4	0.033	0.01	0.01	0.01	0.016	0.02955