Annual Environmental Report

2018

Blessington

D0063-01

TABLE OF CONTENTS

1 EXECUTIVE SUMMARY AND INTRODUCTION TO THE 2018 AER

This Annual Environmental Report has been prepared for D0063-01, Blessington, 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 BLESSINGTON WWTP with a Plant Capacity PE of 6000. The treatment process includes the following:

1.2.1 BLESSINGTON WWTP

Treatment type	Yes / No	Details
Preliminary Treatment	Yes	Screening / grit removal
Primary Treatment	No	
Secondary Treatment	Yes	Extended aeration/activated sludge
Nutrient Removal	Yes	Chemical Dosing for Phosphorus and Ammonia 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 BLESSINGTON WWTP

Compliance Status	
Were all parameters compliant for BLESSINGTON 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
BLESSINGTON WWTP	Cake Sludge	45.4	Weight (Tonnes)	11.8	Sludge Hub Centre, Knockrobin, Wicklow Town (Thermal Drying).
BLESSINGTON WWTP	Cake Sludge	502.24	Weight (Tonnes)	12.7	H&L Environmental Services, Moyne, Derryville, Thurles, Co. Tipperary (Anaerobic Digestion).
BLESSINGTON WWTP	Cake Sludge	26.82	Weight (Tonnes)	11.87	Owens Quarry, Gaulsmoystown, Knockdrin, Mullingar, Co. Westmeath (Lime Stabilisation)

Annual Statement of Measures

IW submitted a Planning Application to Wicklow County Council at end of Q1 2018 for the Upgrade of Blessington WwTP to 9,000 p.e.. Planning Permission was granted by Wicklow County Council dated 25/9/2018, however this decision was appealed to An Bord Pleanála who subsequently granted permission on the 26/02/2019. No capital improvement works were undertaken or executed during 2018.

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 - BLESSINGTON WWTP

Parameters	Number of Samples	Annual Max	Annual Mean
Total Nitrogen mg/l	12	76.1	61.42
Total Phosphorus (as P) mg/l	12	32.4	10.94
COD-Cr mg/l	12	2130	767.74
Suspended Solids mg/l	12	548	284.32
BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l	12	2060	480.58
Hydraulic Capacity	0	2074	921

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 - BLESSINGTON 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)
BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l	20	40	0	12	2	1	12.03	Fail
pH pH units	6 to 9	6 to 9	0	12	0	0	7.65	Pass
COD-Cr mg/l	125	250	0	12	0	0	50.17	Pass
Ammonia-Total (as N) mg/l	5	6	0	12	3	2	3.97	Fail
Nitrite (as N) mg/l	N/A	N/A	0	12	0	0	1.1	N/A
Suspended Solids mg/l	30	75	0	12	4	2	37.64	Fail
Temperature °C	25	0	0	3	0	0	4.96	Pass
Conductivity 20 C µS/cm	N/A	N/A	0	12	0	0	1056.97	N/A
Total Nitrogen mg/l	N/A	N/A	0	12	0	0	20.93	N/A
Nitrate (as N) mg/l	N/A	N/A	0	12	0	0	15.62	N/A

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	1	1.2	0	12	1	1	0.5	Fail
Total Phosphorus (as P) mg/l	N/A	N/A	0	12	0	0	1.75	N/A

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):

Inadequate Operational Procedures and WWTP not designed for N removal.

Significance of Results:

The WWTP was not compliant with the ELV's set in the Wastewater Discharge Licence. There were two samples non compliant with the BOD ELV, of which one was above the ELV with the Condition 2 interpretation. There were four samples non compliant with the TSS ELV, of which two were above the ELV with the Condition 2 interpretation. There were three samples non compliant with the Ammonia-N ELV, of which two were above the ELV with the Condition 2 interpretation. There was one sample non compliant with the Ortho-P ELV with the Condition 2 interpretation. The impact on receiving water is assessed 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 - BLESSINGTON 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	294714, 208463	TPEFF3400D0063SW001	No	No	No	No	Moderate
Downstream	294165, 208292	TPEFF3400D0063SW001	No	No	No	No	Moderate

2.3.2 Ambient Monitoring Parameter Summary - BLESSINGTON 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 meets the EQS this 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 negative impact on the water quality.

The discharge from the WWTP has no observable negative impact on the Water Framework Directive status.

It is acknowledged that consistent achievement with the ELVs would benefit the quality of the receiving water.

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 - BLESSINGTON WWTP

Parameter	Influent mass loading (kg/year)	Effluent mass emission (kg/year)	Efficiency (% reduction of influent load)
TP	3759.31	553.18	85.28
TN	21101.82	6599.11	68.73
cBOD	165121.62	3791.96	97.7
COD	263784.16	15819.62	94
SS	97688.28	11867.65	87.85

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.

BLESSINGTON WWTP	
Peak Hydraulic Capacity (m3/day) - As Constructed	4050

BLESSINGTON WWTP	
DWF to the Treatment Plant (m3/day)	1350
Current Hydraulic Loading - annual max (m3/day)	2074
Average Hydraulic loading to the Treatment Plant (m3/day)	921
Organic Capacity (PE) - As Constructed	6000
Organic Capacity (PE) - Collected Load (peak week)	6466
Organic Capacity (PE) - Remaining	0
Will the capacity be exceeded in the next three years? (Yes/No)	Yes

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
8	Blocked Sewer	0	8

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)
Uncontrolled release	Other	1	No	Yes
Non-compliance	Inadequate Operational Procedures	1	Yes	No
Spillage	Plant or equipment breakdown at WWTP	1	No	Yes
Non-compliance	Inadequate Operational Procedures	1	No	No
Non-compliance	WWTP not designed for N removal	1	Yes	No

3.4.2 Summary of Overall Incidents

Question	Answer
Number of Incidents in 2018	4
Number of Incidents reported to the EPA via EDEN in 2018	4
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)
Domestic /Septic Tank Sludge	194.7	Volume (m3)	2.3	0.06	Yes	Yes	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 (m3)	Monitoring Status
There are no Storm Water Overflows in this Agglomeration.							

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 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 / 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
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	2012	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: 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

Appendix
Appendix 7.1 - Ambient Monitoring Summary

Blessington 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	294714E 208463N	RS09L010370				
Downstream Monitoring Point	294164E 208292N	RS09L010390	No	No	No	No

Ambient Monitoring Point from WWDL (or as agreed with EPA)	Current WFD Status	cBOD (Mean mgl/l)	o-Phosphate (as P) (Mean mg/l)	Ammonia (as N) (mean mg/l)
Upstream Monitoring Point	Poor	0.782	0.010	0.014
Downstream Monitoring Point	Poor	1.052	0.010	0.014
Difference		*0.270*	*0.000*	*0.000*
EQS		2.600	0.075	0.140
% of EQS		10.385%	0.000%	0.000%

2018 Ambient Monitoring Data

Upstream Results							
Date		Ammonia (mg/l) *	Ortho P (mg/l) *	BOD (mg/l)	D.O (% Sat)	D.O (mg/l)	pH (mg/l)
23/02/18	U/S	< 0.02	< 0.02	1.04	98	12.2	7.2
16/03/18	U/S	< 0.02	< 0.02	< 1	94.6	12	7.59
20/04/18	U/S	< 0.02		< 1	103.4	11.12	7.57
04/05/18	U/S	< 0.02	< 0.02	< 1	95.8	12	7.51
08/06/18	U/S	< 0.02	Note a	< 1	105	9.34	8.03
06/07/18	U/S	0.02	< 0.02	1	102	9.16	7.31
10/08/18	U/S	< 0.02	< 0.02	2	115	10.5	7.34
07/09/18	U/S	< 0.02	<0.02	<1	119	10.5	7.92
05/10/18	U/S	0.04	<0.02	<1	96.7	10.32	7.58
Mean		**0.014**	**0.010**	**0.782**	103.3	10.79	7.56
95%ile		**0.032**	**0.010**	**1.616**	117.4	12.12	7.99

Downstream Results							
Date		Ammonia (mg/l) *	Ortho P (mg/l) *	BOD (mg/l)	D.O (% Sat)	D.O (mg/l)	pH (mg/l)
23/02/18	D/S	< 0.02	< 0.02	0.97	97	12.5	7.35
16/03/18	D/S	< 0.02	< 0.02	< 1	97	11.9	7.75
20/04/18	D/S	< 0.02		1	100.4	11.18	7.58
04/05/18	D/S	< 0.02	< 0.02	< 1	97.2	11.8	7.73
08/06/18	D/S	< 0.02	Note a	2	103	9.21	7.89
06/07/18	D/S	< 0.02	< 0.02	< 1	102	9.04	7.35
10/08/18	D/S	< 0.02	< 0.02	3	115	10.2	7.32
07/09/18	D/S	0.02	<0.02	<1	122	10.7	7.91
05/10/18	D/S	0.04	<0.02	<1	99	10.61	7.6
Mean		**0.014**	**0.010**	**1.052**	103.6	10.79	7.61
95%ile		**0.032**	**0.010**	**2.600**	119.2	12.26	7.90

** 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.*

[a] *There is currently a query with the lab on the u/s and d/s Ortho-P Sample result on the 08/06/18.*