

Annual Environmental Report

2018



Carnew

D0064-01

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1 EXECUTIVE SUMMARY AND INTRODUCTION TO THE 2018 AER

This Annual Environmental Report has been prepared for D0064-01, Carnew, 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 CARNEW WWTP with a Plant Capacity PE of 2300. The treatment process includes the following:

1.2.1 CARNEW WWTP

Treatment type	Yes / No	Details
Preliminary Treatment	Yes	Screening
Primary Treatment	No	
Secondary Treatment	Yes	Oxidation Ditch
Nutrient Removal	No	
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 CARNEW WWTP

Compliance Status	
Were all parameters compliant for CARNEW 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
CARNEW WWTP	Cake Sludge	45.24	Weight (Tonnes)	13.2	Knockrobin, Wicklow
CARNEW WWTP	Cake Sludge	7.38	Weight (Tonnes)	12.87	Gaulsmoystown, Knockdrin, Mullingar, Co. Westmeath
CARNEW WWTP	Cake Sludge	300.86	Weight (Tonnes)	12.88	Moyne, Derryville, Thurles, Co. Tipperary

Annual Statement of Measures

There were no major capital or operational changes undertaken.

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 - CARNEW WWTP

Parameters	Number of Samples	Annual Max	Annual Mean
Total Phosphorus (as P)	12	16.8	6.02
Total Nitrogen	12	77.4	33.66
BOD, 5 days with Inhibition (Carbonaceous BOD)	12	468	179.28
COD-Cr	12	1567	391.73
Suspended Solids	12	464	141.97
Hydraulic Capacity		1489	274.45

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 - CARNEW 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 Nitrogen	0	0	0	12	0	0	26.55	N/A
Temperature	0	0	0	3	0	0	6.43	N/A
Ammonia-Total (as N)	0.2	0.4	0	12	9	9	17.02	Fail
BOD, 5 days with Inhibition (Carbonaceous BOD)	6	12	0	12	3	0	5.29	Pass
pH	6 to 9	0	0	12	0	0	7.19	Pass
COD-Cr	125	250	0	12	0	0	34.7	Pass
ortho-Phosphate (as P) - unspecified	0.1	0.2	0	12	1	0	0.03	Pass
Total Phosphorus (as P)	0	0	0	12	0	0	0.2	N/A
Suspended Solids	25	62.5	0	12	0	0	9.76	Pass
Nitrate (as N)	0	0	0	12	0	0	8.02	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)
Nitrite (as N)	0	0	0	12	0	0	0.08	N/A

Notes:

Cause of Exceedance(s):

WWTP Upgrade required to meet ELVs. The diversion of imported sludges from Carnew WwTP commenced on 29/05/2018 and resulted in significantly reduced ammonia concentrations in the final effluent.

Significance of Results:

The WWTP was not compliant with the ELV's set in the Wastewater Discharge Licence. There were 9 samples non compliant with the Condition 2 ELV for Ammonia. It should be noted that the diversion of imported sludges from Carnew WwTP commenced on 29/05/2018 and has resulted in significantly reduced ammonia concentrations in the final effluent. There was one reportable BOD ELV exceedance. 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 - CARNEW 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	300718, 162945	TPEFF3400D0064SW001	No	No	No	No	Poor

Ambient Monitoring Point from WWDL (or as agreed with EPA)	Irish Grid Reference	Code	Bathing Water	Drinking Water	FWPM	Shellfish	WFD Status
Downstream	300693, 162961	TPEFF3400D0064SW001	No	Yes	No	No	Poor

2.3.2 Ambient Monitoring Parameter Summary - CARNEW 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)	RS12C760810	0.02	RS12C760820	0.46	0.15	301.9
Conductivity 20 C	RS12C760810	221.75	RS12C760820	246.25		
Temperature	RS12C760810	9.25	RS12C760820	9.28		
Total Oxidised Nitrogen (as N)	RS12C760810	4.02	RS12C760820	3.44		
BOD - 5 days (Total)	RS12C760810	0.83	RS12C760820	2.33	2.6	57.7
ortho-Phosphate (as P) - unspecified	RS12C760810	0.020	RS12C760820	0.024	0.075	4.7
pH	RS12C760810	7.06	RS12C760820	7.19		
Dissolved Oxygen	RS12C760810	53.43	RS12C760820	53.48		
Nitrite (as N)	RS12C760810	0.02	RS12C760820	0.03		
Suspended Solids	RS12C760810	3.13	RS12C760820	3.38		

Significance of Results:

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

The discharge from the WWTP has no observable negative impact on the Water Framework Directive status. The status is Poor u/s and d/s of the WWTP.

The ambient monitoring results did not meet the required EQS for Ammonia-N d/s of the WWTP. 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 Ammonia ELV non-compliances in 2018, it is likely that the WWTP discharge contributed to this decline in water quality.

In terms of BOD, the WWTP may have contributed to the increase in concentration in BOD d/s of the plant. It should be noted that the BOD EQS was met d/s of the primary discharge.

Other causes of deterioration in water quality in the area are unknown.

It is noted 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 - CARNEW WWTP

Parameter	Influent mass loading (kg/year)	Effluent mass emission (kg/year)	Efficiency (% reduction of influent load)
TP	479.62	15.93	96.68
SS	11305.08	777.35	93.12
COD	31193.81	2762.84	91.14
cBOD	14275.82	420.96	97.05
TN	2680.4	2114.17	21.12

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.

CARNEW WWTP	
Peak Hydraulic Capacity (m ³ /day) - As Constructed	1551
DWF to the Treatment Plant (m ³ /day)	517
Current Hydraulic Loading - annual max (m ³ /day)	1489
Average Hydraulic loading to the Treatment Plant (m ³ /day)	274.45
Organic Capacity (PE) - As Constructed	2300
Organic Capacity (PE) - Collected Load (peak week)	1559
Organic Capacity (PE) - Remaining	741
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
1	Blocked Sewer	0	1

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	WWTP upgrade required to meet ELV	1	Yes	No

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	3765	Volume (m ³)	45	3.5	Yes	Yes	No
Domestic /Septic Tank Sludge	615	Volume (m ³)	7	0.83	No	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 (m ³)	Monitoring Status
SW002	300716, 162948	Yes	Low	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
Complete improvements to comply with ELVs specified in Schedule A. Implement, requirements in accordance with Condition 5.6.1.	C	30/06/2019	No	Work ongoing on-site	31/12/2019	The Condition 5 Assessment will be completed by Q4 2019
Improvement works to ensure compliance with Condition 1.7	C	31/07/2019	No	Work ongoing on-site	31/12/2019	New grit trap installed in January 2019. Caustic dosing to be installed in 2019. There will be a full clean out of the oxidation ditch and clarifier which should have a positive effect on effluent compliance.

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

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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	2015	No	
Priority Substances Assessment	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	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

There are no Appendices included.