Annual Environmental Report

2018

Carndonagh Malin

D0113-01

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1 EXECUTIVE SUMMARY AND INTRODUCTION TO THE 2018 AER

This Annual Environmental Report has been prepared for D0113-01, Carndonagh Malin, in Donegal 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 this AER.	

1.2 Treatment Type

The agglomeration is served by a wastewater treatment plant Carndonagh/Malin WWTP with a Plant Capacity PE of 5833. The treatment process includes the following:

1.2.1 Carndonagh/Malin WWTP

Treatment type	Yes / No	Details
Preliminary Treatment	Yes	Mechanical screening and grit removal
Primary Treatment	No	
Secondary Treatment	Yes	Conventional Activated Sludge
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 Carndonagh/Malin WWTP

Compliance Status	
Were all parameters compliant for Carndonagh/Malin 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
Carndonagh/Malin WWTP	Cake Sludge	555.2	Weight (Tonnes)	17	Letterkenny Sludge Hub

Annual Statement of Measures

Not applicable.

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 - Carndonagh/Malin WWTP

Parameters	Number of Samples	Annual Max	Annual Mean
Total Phosphorus (as P) mg/l	12	7.44	3.18
Suspended Solids mg/l	12	204	89.34
COD-Cr mg/l	12	519	186.01
BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l	12	331	115.67
Total Nitrogen mg/l	12	53.1	26.69
Hydraulic Capacity	0	3190	1660.82

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 treatment 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 - Carndonagh/Malin 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 exceedances with Condition 2 Interpretation included	Annual Mean	Overall Compliance (Pass/Fail)
Enterococci (Intestinal) cfu/100ml	0	0	0	2	0	0	10	Pass
Total Phosphorus (as P) mg/l	2	2.4	0	12	3	2	0.99	Fail
Orthophosphate (MRP) filtered (As P) mg/l	0	0	0	12	0	0	0.99	Pass
Nitrite (as N) mg/l	0	0	0	12	0	0	0.03	Pass
Temperature °C	25	0	0	12	0	0	6.87	Pass
E. Coli MPN/100ml	0	0	0	2	0	0	7.23	Pass
pH pH units	0	0	0	12	0	0	6.94	Pass
Fats, Oils & Greases mg/l	0	0	0	2	0	0	3.3	Pass
Total Nitrogen mg/l	0	0	0	12	0	0	11.75	Pass

Faecal coliforms cfu/100ml	0	0	0	2	0	0	10.95	Pass
BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l	25	50	0	12	0	0	2.92	Pass
Conductivity 20 C µS/cm	0	0	0	12	0	0	730.94	Pass
Nitrate (as N) mg/l	0	0	0	12	0	0	9.06	Pass
COD-Cr mg/l	125	250	0	12	0	0	20.39	Pass
Ammonia-Total (as N) mg/l	5	6	0	12	0	0	0.14	Pass
Suspended Solids mg/l	35	87.5	0	12	0	0	7.85	Pass
Total Oxidised Nitrogen (as N) mg/l	10	12	0	12	6	5	9.1	Fail

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):

Not applicable

Significance of Results:

The WWTP is 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 - Carndonagh/Malin 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	246754, 447993	TPEFF0600D0113SW001	No	No	No	Yes	Poor

2.3.2 Ambient Monitoring Parameter Summary - Carndonagh/Malin 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 do not meet the required EQS.

The discharge from the wastewater treatment plant does not have an observable impact on the water quality.

The discharge from the wastewater treatment plant does not have an observable negative impact on the Water Framework Directive status.

Other Potential cause of deterioration in water quality relevant to this area are: Unknown.

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 - Carndonagh/Malin WWTP

Parameter	Influent mass loading (kg/year)	Effluent mass emission (kg/year)	Efficiency (% reduction of influent load)	Comment
COD	126113.19	13122.88	89.59	
SS	60569.93	5051.87	91.66	
TP	2155	639.02	70.35	
cBOD	78421.56	1876.08	97.61	
TN	18098.15	7564.26	58.2	

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.

Carndonagh/Malin WWTP	
Peak Hydraulic Capacity (m3/day) - As Constructed	3654

DWF to the Treatment Plant (m3/day)	1218
Current Hydraulic Loading - annual max (m3/day)	3190
Average Hydraulic loading to the Treatment Plant (m3/day)	1660.82
Organic Capacity (PE) - As Constructed	5833
Organic Capacity (PE) - Collected Load (peak week)	4716
Organic Capacity (PE) - Remaining	1117
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)
Non-compliance	Inadequate Operational Procedures	5	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)?[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
SW002	246731, 448010	Yes	Low	Not Meeting	Unknown	Unknown	Not Monitored
SW003	246731, 448010	Yes	Low	Not Meeting	Unknown	Unknown	Not Monitored

4.1.2 Inspection Summary Report

SWO Summary	
How much sewage was discharged via SWOs in the agglomeration in the year (m3)?	55538
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?	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 (e.g. Appendix X).
Priority Substances Assessment	Yes	2015	No	Appendix 7.5

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	Not applicable
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	Not applicable
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: 28/03/2019

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

Municiple	Entity Name	Month	Location	Lab Ref	Date	pH	Temperature	Conductivity @ 20°C	DO	BOD	COD	Suspended Solids	Ammonia (as N)	Nitrate (as N)	Nitrite (as N)	Orthophosphate	Total Nitrogen	TON	Total Phosphorus	E coli	Faecal Coliforms (E. coli)	Enterococci	SSRS	DIN
Inishowen	Donagh	January	Carndonagh - Upstream	182500046	16-Jan-2018	7.3	7.9	159	103.6	2	NT	< 6	0.1	0.6	0.004	0.01	2.4	0.604	NT	NT	NT	NT	NT	NT
Inishowen	Donagh	January	Carndonagh - Downstream	182500049	16-Jan-2018	7	7.9	225	100.3	3	NT	< 6	0.53	1.1	0.008	0.08	3.2	1.108	NT	NT	NT	NT	NT	NT
Inishowen	Donagh	February	Carndonagh - Upstream	182500381	13-Feb-2018	7.2	4.5	107	105.9	1	NT	6	< 0.015	0.434	< 0.015	< 0.05	0.5	0.442	NT	NT	NT	NT	NT	NT
Inishowen	Donagh	February	Carndonagh - Downstream	182500384	13-Feb-2018	7.2	4.5	135	103.9	< 1	NT	< 6	0.017	0.711	< 0.015	< 0.05	0.9	0.718	NT	NT	NT	NT	NT	NT
Inishowen	Donagh	March	Carndonagh - Upstream	182500766	13-Mar-2018	7.7	7.8	211	114.3	1	NT	< 6	< 0.015	< 0.015	0.419	< 0.05	0.614	0.426	NT	NT	NT	NT	NT	NT
Inishowen	Donagh	March	Carndonagh - Downstream	182500769	13-Mar-2018	7.4	7.8	346	108.1	1	NT	< 6	< 0.015	0.048	3.75	0.196	4	3.798	NT	NT	NT	NT	NT	NT
Inishowen	Donagh	April	Carndonagh - Upstream	182501224	17-Apr-2018	7.6	11.3	18800	103.2	< 1	NT	33	< 0.015	0.12	< 0.015	< 0.05	< 1	0.128	NT	NT	NT	NT	NT	NT
Inishowen	Donagh	April	Carndonagh - Downstream	182501227	17-Apr-2018	7.3	11.3	17740	101.3	2	NT	30	0.024	0.244	0.019	0.586	3.08	0.263	NT	NT	NT	NT	NT	NT
Inishowen	Donagh	May	Carndonagh - Upstream	182501456	10-May-2018	7.7	11.2	933	109.7	1	NT	< 6	0.017	0.362	<0.23	0.02	1.09	0.477	NT	NT	NT	NT	NT	NT
Inishowen	Donagh	May	Carndonagh - Downstream	182501459	10-May-2018	7.6	11	1406	112	1	NT	< 6	0.995	2.35	0.093	0.26	2.85	2.44	NT	NT	NT	NT	NT	NT
Inishowen	Donagh	June	Carndonagh - Upstream	182502013	19-June-2018	7.6	12	3240	106.9	1	NT	< 6	0.021	0.263	<0.015	< 0.05	0.703	NT	NT	NT	NT	NT	NT	NT
Inishowen	Donagh	June	Carndonagh - Downstream	182502016	19-June-2018	7.6	12.2	7440	108.2	1	NT	< 6	0.042	6.89	0.02	0.997	8.29	6.91	NT	NT	NT	NT	NT	NT
Inishowen	Donagh	July	Carndonagh - Upstream	182502588	19-Jul-18	7.6	14.9	1107	115	1	NT	25	0.036	0.111	0.004	0.039	1.08	0.115	NT	NT	NT	NT	NT	NT
Inishowen	Donagh	July	Carndonagh - Downstream	182502591	19-Jul-18	7.4	14.9	3620	98.1	1	NT	12	0.074	6.25	0.02	0.983	8.36	6.27	NT	NT	NT	NT	NT	NT
Inishowen	Donagh	August	Carndonagh - Upstream	182503141	28-Aug-18	7.2	13.5	3450	96.5	1	NT	12	0.029	1.2	0.031	<0.05	1.21	1.2	NT	NT	NT	NT	NT	NT
Inishowen	Donagh	August	Carndonagh - Downstream	182503144	28-Aug-18	7.1	13.5	4780	95.2	1	NT	10	0.041	1.8	0.021	0.086	1.82	1.8	NT	NT	NT	NT	NT	NT
Inishowen	Donagh	September	Carndonagh - Upstream	182503441	12-Sep-18	7.3	12.5	8040	86.2	1	NT	7	0.046	0.511	<0.015	<0.05	0.779	0.518	NT	NT	NT	NT	NT	NT
Inishowen	Donagh	September	Carndonagh - Downstream	182503444	12-Sep-18	7.3	12.5	7740	96.4	1	NT	9	0.059	2.02	0.014	0.316	3.28	2.034	NT	NT	NT	NT	NT	NT
Inishowen	Donagh	October	Carndonagh - Upstream	182503883	10-Oct-18	7	16.5	279	99	1	NT	7	0.022	0.778	<0.015	0.06	0.92	0.785	NT	NT	NT	NT	NT	NT
Inishowen	Donagh	October	Carndonagh - Downstream	182503886	10-Oct-18	7	16.9	698	96.9	1	NT	27	0.03	5.63	<0.015	0.34	5.96	5.65	NT	NT	NT	NT	NT	NT
Inishowen	Donagh	November	Carndonagh - Upstream	182504396	15-Nov-18	7.2	12.2	112	95.8	1	NT	188	0.034	0.922	0.023	<0.05	2.17	0.945	NT	NT	NT	NT	NT	NT
Inishowen	Donagh	November	Carndonagh - Downstream	182504399	15-Nov-18	7	12.2	190	95.8	1	NT	169	0.03	1.5	0.018	0.057	2.76	1.518	NT	NT	NT	NT	NT	NT

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			Receiving Waters Designation (Yes/No)					Mean (mg/l)		
Ambient Monitoring Point from WWDL (or as agreed with EPA)	**Irish National Grid Reference (Easting, Northing)**	**EPA Feature Coding Tool code**	**Bathing Water**	**Drinking Water**	**FWPM**	**Shellfish**	**Current WFD Status**	**cBOD**	**o-Phosphate (as P)**	**Ammonia (as N)**
Upstream Monitoring Point	246760, 448000	IE_NW_40D01400					Poor	1.313	0.044	0.032
Downstream Monitoring Point	246754, 448037	IE_NW_40D010400	No	No	No	Yes	Poor	1.270	0.359	0.169
Difference								*-0.043*	*0.315*	*0.137*
EQS								2.600	0.075	0.140
% of EQS								-1.654%	420.613%	97.857%