Annual Environmental Report

2019

Camdonagh Malin

D0113-01

CONTENTS

7 APPENDIX

7.1 AMBIENT MONITORING SUMMARY

1 EXECUTIVE SUMMARY AND INTRODUCTION TO THE 2019 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 where relevant are included as an appendix to the AER.

1.1 ANNUAL STATEMENT OF MEASURES

A summary of any improvements undertaken is provided where applicable.

There were no major capital or operational changes undertaken.

1.2 TREATMENT SUMMARY

The agglomeration is served by a wastewater treatment plant(s)

- Carndonagh/Malin WWTP with a Plant Capacity PE of 5833, the treatment type is 2 - Secondary treatment

1.3 ELV OVERVIEW

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.

Discharge Point Reference	Treatment Plant	Discharge Type	Compliance Status	Parameters failing if relevant
TPEFF0600D0113SW001	Carndonagh/Malin WWTP	Treated	Non-Compliant	Total Oxidised Nitrogen (as N) mg/l Total Phosphorus (as P) mg/l

1.4 LICENCE SPECIFIC REPORTING INCLUDED IN AER

Assessment / Report	Included in AER
There are no Licence Specific Reports included in the AER.	

2 TREATMENT PLANT PERFORMANCE AND IMPACT SUMMARY

2.1 CARNDONAGH/MALIN WWTP - TREATED DISCHARGE

2.1.1 INFLUENT MONITORING SUMMARY - CARNDONAGH/MALIN WWTP

A summary of influent monitoring for the treatment plant is presented below. This monitoring is primarily undertaken in order to determine the overall efficiency of the plant in removing pollutants from the raw wastewater.

Parameters	Number of Samples	Annual Max	Annual Mean
Total Nitrogen mg/l	12	56.6	28.12
COD-Cr mg/l	12	506	241.89
Total Phosphorus (as P) mg/l	12	5.62	2.78
Suspended Solids mg/l	12	184	90.94
BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l	12	218	129.36
Hydraulic Capacity	N/A	2387	1888.56

If other inputs in the form of sludge / leachate are added to the WWTP then these are included in Section 2.1.5 if applicable.

Significance of Results:

The annual mean hydraulic loading is less than the peak Treatment Plant Capacity. The annual maximum hydraulic loading is less than the peak Treatment Plant Capacity. Further details on the plant capacity and efficiency can be found under the sectional ‘Operational Performance Summary’.

2.1.2 EFFLUENT MONITORING SUMMARY - TPEFF0600D0113SW001

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)
COD-Cr mg/l	125	250	N/A	12	N/A	N/A	20.21	Pass
Suspended Solids mg/l	35	87.5	N/A	12	N/A	N/A	6.01	Pass
Temperature °C	25	25	N/A	11	N/A	N/A	4.64	Pass
BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l	25	50	N/A	12	N/A	N/A	4.92	Pass
Total Oxidised Nitrogen (as N) mg/l	10	12	N/A	12	8	8	12.89	Fail
pH pH units	9	9	N/A	12	N/A	N/A	7.12	Pass
Ammonia-Total (as N) mg/l	5	6	N/A	12	N/A	N/A	0.51	Pass
Total Phosphorus (as P) mg/l	2	2.4	N/A	12	4	N/A	1.57	Fail
E. Coli MPN/100ml	N/A	N/A	N/A	12	N/A	N/A	612.32	
Nitrite (as N) mg/l	N/A	N/A	N/A	12	N/A	N/A	0.35	

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	N/A	N/A	N/A	12	N/A	N/A	1.35	
Total Nitrogen mg/l	N/A	N/A	N/A	12	N/A	N/A	14.8	
Coliform Bacteria (Total) MPN/100ml	N/A	N/A	N/A	10	N/A	N/A	3708.39	
Enterococci (Intestinal) cfu/100ml	N/A	N/A	N/A	7	N/A	N/A	277.41	
Conductivity 20 C µS/cm	N/A	N/A	N/A	12	N/A	N/A	772.7	
Fats, Oils & Greases mg/l	N/A	N/A	N/A	3	N/A	N/A	5	
Faecal coliforms cfu/100ml	N/A	N/A	N/A	8	N/A	N/A	242.37	
Nitrate (as N) mg/l	N/A	N/A	N/A	12	N/A	N/A	12.54	

Notes:
1 – This represents the Emission Limit Values after the Interpretation provided for under Condition 2 of the licence is applied

Cause of Exceedance(s):

Refer to Incident section of the Report

Significance of Results:

the WWTP is non compliant with the ELV's set in the wastewater discharge licence. the mpact on the receiving waters is assessed further in Section 2.

2.1.3 AMBIENT MONITORING SUMMARY FOR THE TREATMENT PLANT DISCHARGE TPEFF0600D0113SW001

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.

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	River Station Code	Bathing Water	Drinking Water	FWPM	Shellfish	WFD Status
Upstream	246754, 447993	RS40D010640	No	No	No	Yes	Poor

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 does not meet the required EQS. The EQS relates to the Oxygenation and Nutrient Conditions set out in the Surface Water Regulations 2009.

Based on ambient monitoring results a deterioration in Ammonia, Ortho-Phosphate and BOD, concentrations downstream of the effluent discharge is noted.

A deterioration in water quality has been identified, however it is not known if it or is not caused by the WWTP.

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

The discharge from the wastewater treatment plant does have an observable negative impact on the Water Framework Directive status.

2.1.4 OPERATIONAL PERFORMANCE SUMMARY - CARNDONAGH/MALIN WWTP

2.1.4.1 Treatment Efficiency Report - Carndonagh/Malin WWTP

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:

Parameter	Influent mass loading (kg/year)	Effluent mass emission (kg/year)	Efficiency (% reduction of influent load)
cBOD	84344	3208	96
COD	157715	13178	92
SS	59294	3921	93
TP	1812	1025	43
TN	18335	9647	47

Note: The above data is based on sample results for the number of dates reported

2.1.4.2 Treatment Capacity Report Summary - Carndonagh/Malin WWTP

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 (m^3/day) - As Constructed	3654
DWF to the Treatment Plant (m^3/day)	1218
Current Hydraulic Loading - annual max (m^3/day)	2387

Carndonagh/Malin WWTP	
Average Hydraulic loading to the Treatment Plant (m^3/day)	1888.56
Organic Capacity (PE) - As Constructed	5833
Organic Capacity (PE) - Collected Load (peak week)[Note1]	5634
Organic Capacity (PE) - Remaining	199
Will the capacity be exceeded in the next three years? (Yes/No)	No

Nominal design capacities can be based on conservative design principles. In some cases assessment of existing plants has shown organic capacities significantly higher than the nominal design capacity. Accordingly plants that appear to be overloaded when comparing a collected peak load with the nominal design capacity can be fully compliant due to the safety factors in the original design.

2.1.5 SLUDGE / OTHER INPUTS - CARNDONAGH/MALIN 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)
Waterworks Sludge	18	Volume (m3)	0.2	0.2	Yes	Yes	No

3 COMPLAINTS AND INCIDENTS

3.1 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 were no relevant environmental complaints in 2019.			

3.2 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.

3.2.1 SUMMARY OF INCIDENTS

Incident Type	Cause	No. of incident occurrences	Recurring (Y/N)	Closed (Y/N)
Breach of ELV	Inadequate Infrastructure	1	Yes	No

3.2.2 SUMMARY OF OVERALL INCIDENTS

Question	Answer
Number of Incidents in 2019	1
Number of Incidents reported to the EPA via EDEN in 2019	1
Explanation of any discrepancies between the two numbers above	N/A

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:

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 2019 (No. of events)	Total volume discharged in 2019 (m3)	Monitoring Status
TBC	246731, 448010	No	Low	Not Meeting	Unknown	Unknown	Not Monitored
TBC	246731, 448010	No	Low	Meeting	Unknown	Unknown	Not Monitored

SWO Summary	
How much sewage was discharged via SWOs in the agglomeration in the year (m3)?	Unknown
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?	Yes
Have the EPA been advised of any additional SWOs / changes to Schedule C3 and A4 under Condition 1.7?	N/A

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)	Description	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 / or any Operational Improvements	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	2015	No	
Shellfish Impact Assessment	Yes		No	

5.1 PRIORITY SUBSTANCES ASSESSMENT

The Priority Substances Assessment Report has been included in the AER 2015

5.2 SHELLFISH IMPACT ASSESSMENT

The Shellfish Impact Assessment Report has been included in the AER

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 modification to the existing WWDL with respect to condition 4 changes to monitoring location, frequency etc	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	Yes

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

Signed: Date: 26/06/2020

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 ,

Katherine Walshe

Acting Head of Environmental Regulation.

7 APPENDIX

Appendix
Appendix 7.1 - Ambient monitoring summary

Ambient Monitoring Summary: Carndonagh

Table 1: Ambient Monitoring Table

Ambient Monitoring Point from WWDL (or as agreed with EPA)	*Irish Grid Reference*	EPA Feature Coding Tool code	Receiving Waters Designation (Y/N)				WFD Status
			Bathing Water	Drinking Water	FWPM	Shellfish	
Upstream Monitoring Point	246760,448000	IW_NW_40D010400	no	no	no	Yes	Poor
Downstream Monitoring Point	246754,448037	IW_NW_40D010400	no	no	no	Yes	Poor

Table 2: Ambient Impact Assessment Table

Parameter Name	Upstream Monitoring Point Location	Upstream Monitoring Point Annual Mean	Downstream Monitoring Point Location	Downstream Monitoring Point Annual Mean	EQS (mean)	%EQS
cBOD mg/l	246760,448000	1.182	246754,448037	1.636	1.5	-30.27%
Ortho-Phosphate (as P) mg/l	246760,448000	0.0876	246754,448037	0.2926	.035	-585.71%
Ammonia (as N) mg/l	246760,448000	0.0285	246754,448037	0.053	.065	--37.69%

Donagh	January	Carndonagh - Upstream	192500111	15-Jan-19	7.3	7.1	135	97.2	1	NT	<6	0.031	NT	NT	0.24	2.12	NT	NT
Donagh	January	Carndonagh - Downstream	192500114	15-Jan-19	7.3	7.1	140	96.9	1	NT	<6	0.038	NT	NT	0.05	2.69	NT	NT
Donagh	February	Carndonagh - Upstream	192500624	12-Feb-19	7.2	9.5	179	98.2	1	NT	<6	<0.015	0.919	<0.015	<0.05	0.917	0.926	NT
Donagh	February	Carndonagh - Downstream	192500627	12-Feb-19	6.2	9.6	207	98.8	1	NT	<6	<0.015	1.52	<0.015	0.064	1.89	1.528	NT
Donagh	March	Carndonagh - Upstream	192500987	06-Mar-19	6	5.2	91	104.9	3	NT	428	0.05	0.921	0.021	0.299	2.08	0.942	NT
Donagh	March	Carndonagh - Downstream	192500990	06-Mar-19	6.3	5.4	114	105.8	4	NT	410	0.11	1.61	0.068	0.307	2.64	1.678	NT
Donagh	April	Carndonagh - Upstream	192501518	17-Apr-19	7.4	8.6	4410	113.2	1	NT	13	<0.015	0.333	<0.015	<0.05	0.586	0.34	NT
Donagh	April	Carndonagh - Downstream	192501521	17-Apr-19	7.3	8.7	5140	99.6	3	NT	19	0.134	3.52	<0.015	0.623	5.86	3.528	NT
Donagh	May	Carndonagh - Upstream	192501903	21-May-19	7.3	11.7	599	94.2	1	NT	<6	<0.015	0.484	<0.015	<0.05	1.1	0.491	NT
Donagh	May	Carndonagh - Downstream	192501906	21-May-19	7.3	11.7	1512	95.5	1	NT	<6	<0.015	0.645	<0.015	0.08	1.57	0.652	NT
Donagh	June	Carndonagh - Upstream	192502379	18-Jun-19	7.4	14.3	1070	107.4	1	NT	<6	<0.015	0.634	<0.015	<0.05	<1	0.642	0.65
Donagh	June	Carndonagh - Downstream	192502382	18-Jun-19	7.2	15.2	1447	106.5	2	NT	8	0.046	6.24	0.028	0.587	6.93	6.268	6.314
Donagh	July	Carndonagh - Upstream	192502824	08-Jul-19	7.7	16.5	2410	115.4	1	NT	51	0.087	0.364	<0.015	<0.05	2.7	0.37	0.457
Donagh	July	Carndonagh - Downstream	192502829	08-Jul-19	7.5	16.6	2360	114.9	1	NT	11	0.045	3.44	0.021	0.55	7.53	3.46	3.505
Donagh	August	Carndonagh - Upstream	192503423	22-Aug-19	6.7	14	143	102.4	1	NT	<6	0.024	1.17	0.017	<0.05	1.25	1.19	NT
Donagh	August	Carndonagh - Downstream	192503426	22-Aug-19	7.3	14.2	347	101.9	1	NT	<6	0.041	2.86	0.016	0.137	2.89	2.88	NT
Donagh	September	Carndonagh - Upstream	192503825	10-Sep-19	7.4	12.1	187	105.6	1	NT	<6	0.021	0.839	<0.015	0.025	1.01	0.846	NT
Donagh	September	Carndonagh - Downstream	192503828	10-Sep-19	7.3	13.8	673	102.2	2	NT	<6	0.059	7.2	0.015	0.394	7.7	7.21	NT
Donagh	October	Carndonagh - Upstream	192504454	22-Oct-19	7.5	9.8	226	106	1	NT	<6	0.022	0.706	0.019	<0.05	0.965	0.725	NT
Donagh	October	Carndonagh - Downstream	192504457	22-Oct-19	7.4	10.7	440	99	1	NT	<6	0.045	2.58	0.259	0.192	3.25	2.84	NT
Donagh	November	Carndonagh - Upstream	192504804	14-Nov-19	7.2	6.2	186	101.3	1	NT	<6	0.019	0.623	<0.015	<0.05	0.781	0.616	0.635
Donagh	November	Carndonagh - Downstream	192504807	14-Nov-19	7.1	6.2	446	99.2	1	NT	<6	0.035	4.21	<0.015	0.235	4.96	4.22	4.255

Entity Name	Month	Location	Date	pH	Temperature	Conductivity @ 20°C	DO	BOD	Suspended Solids	Ammonia (as N)	Nitrate (as N)	Nitrite (as N)	Orthophosphate	Total Nitrogen	TON	Dissolved Inorganic Nitrog
Donagh	January	Carndonagh - Upstream	15-Jan-19	7.3	7.1	135	97.2	1	<6	0.031	NT	NT	0.24	2.12	NT	NT
Donagh	January	Carndonagh - Downstream	15-Jan-19	7.3	7.1	140	96.9	1	<6	0.038	NT	NT	0.05	2.69	NT	NT
Donagh	February	Carndonagh - Upstream	12-Feb-19	7.2	9.5	179	98.2	1	<6	<0.015	0.919	<0.015	<0.05	0.917	0.926	NT
Donagh	February	Carndonagh - Downstream	12-Feb-19	6.2	9.6	207	98.8	1	<6	<0.015	1.52	<0.015	0.064	1.89	1.528	NT
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Donagh	March	Carndonagh - Downstream	06-Mar-19	6.3	5.4	114	105.8	4	410	0.11	1.61	0.068	0.307	2.64	1.678	NT
Donagh	April	Carndonagh - Upstream	17-Apr-19	7.4	8.6	4410	113.2	1	13	<0.015	0.333	<0.015	<0.05	0.586	0.34	NT
Donagh	April	Carndonagh - Downstream	17-Apr-19	7.3	8.7	5140	99.6	3	19	0.134	3.52	<0.015	0.623	5.86	3.528	NT
Donagh	May	Carndonagh - Upstream	21-May-19	7.3	11.7	599	94.2	1	<6	<0.015	0.484	<0.015	<0.05	1.1	0.491	NT
Donagh	May	Carndonagh - Downstream	21-May-19	7.3	11.7	1512	95.5	1	<6	<0.015	0.645	<0.015	0.08	1.57	0.652	NT
Donagh	June	Carndonagh - Upstream	18-Jun-19	7.4	14.3	1070	107.4	1	<6	<0.015	0.634	<0.015	<0.05	<1	0.642	0.65
Donagh	June	Carndonagh - Downstream	18-Jun-19	7.2	15.2	1447	106.5	2	8	0.046	6.24	0.028	0.587	6.93	6.268	6.314
Donagh	July	Carndonagh - Upstream	08-Jul-19	7.7	16.5	2410	115.4	1	51	0.087	0.364	<0.015	<0.05	2.7	0.37	0.457
Donagh	July	Carndonagh - Downstream	08-Jul-19	7.5	16.6	2360	114.9	1	11	0.045	3.44	0.021	0.55	7.53	3.46	3.505
Donagh	August	Carndonagh - Upstream	22-Aug-19	6.7	14	143	102.4	1	<6	0.024	1.17	0.017	<0.05	1.25	1.19	NT
Donagh	August	Carndonagh - Downstream	22-Aug-19	7.3	14.2	347	101.9	1	<6	0.041	2.86	0.016	0.137	2.89	2.88	NT
Donagh	September	Carndonagh - Upstream	10-Sep-19	7.4	12.1	187	105.6	1	<6	0.021	0.839	<0.015	0.025	1.01	0.846	NT
Donagh	September	Carndonagh - Downstream	10-Sep-19	7.3	13.8	673	102.2	2	<6	0.059	7.2	0.015	0.394	7.7	7.21	NT
Donagh	October	Carndonagh - Upstream	22-Oct-19	7.5	9.8	226	106	1	<6	0.022	0.706	0.019	<0.05	0.965	0.725	NT
Donagh	October	Carndonagh - Downstream	22-Oct-19	7.4	10.7	440	99	1	<6	0.045	2.58	0.259	0.192	3.25	2.84	NT
Donagh	November	Carndonagh - Upstream	14-Nov-19	7.2	6.2	186	101.3	1	<6	0.019	0.623	<0.015	<0.05	0.781	0.616	0.635
Donagh	November	Carndonagh - Downstream	14-Nov-19	7.1	6.2	446	99.2	1	<6	0.035	4.21	<0.015	0.235	4.96	4.22	4.255