Annual Environmental Report

2019

Carrigart

D0523-01

CONTENTS

1 EXECUTIVE SUMMARY AND INTRODUCTION TO THE 2019 AER

This Annual Environmental Report has been prepared for D0523-01, Carrigart, 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)

- Umlagh WWTP with a Plant Capacity PE of 225, the treatment type is 1 - Primary treatment
- CARRIGART VILLAGE WWTP with a Plant Capacity PE of 450, the treatment type is 1 - Primary 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
TPEFF0600D0523SW002	Umlagh WWTP	Treated	There is no Influent data included in the AER.	NA
TPEFF0600D0523SW001	CARRIGART VILLAGE WWTP	Treated	Non-Compliant	BOD, Suspended Solids

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 UMLAGH WWTP - TREATED DISCHARGE

2.1.1 INFLUENT MONITORING SUMMARY - UMLAGH 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
There is no Influent data included in the AER.			

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.

2.1.2 EFFLUENT MONITORING SUMMARY - TPEFF0600D0523SW002

Parameter	WWDL ELV (Schedule A)	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% Reduction	6	N/A	N/A	125	There is no Influent data included in the AER.
Suspended Solids mg/l	50% Reduction	6	N/A	N/A	646.67	There is no Influent data included in the AER.

Significance of Results:

There is no Influent data included in the AER.

2.1.3 AMBIENT MONITORING SUMMARY FOR THE TREATMENT PLANT DISCHARGE TPEFF0600D0523SW002

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
The results for ambient results and / or additional monitoring data sets are included in the Appendix 7.1 - Ambient monitoring summary							

Significance of Results:

There is no Influent data included in the AER.

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 BOD, Ammonia and Ortho-Phosphorus , 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 not have an observable negative impact on the Water Framework Directive status.

2.1.4 OPERATIONAL PERFORMANCE SUMMARY - UMLAGH WWTP

2.1.4.1 Treatment Efficiency Report - Umlagh 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	Unknown	771	Unknown
SS	Unknown	3989	Unknown
TP	Unknown	Unknown	Unknown
TN	Unknown	Unknown	Unknown
COD	Unknown	1169	Unknown

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

2.1.4.2 Treatment Capacity Report Summary - Umlagh 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.

Umlagh WWTP	
Peak Hydraulic Capacity (m^3/day) - As Constructed	150
DWF to the Treatment Plant (m^3/day)	50
Current Hydraulic Loading - annual max (m^3/day)	51

Average Hydraulic loading to the Treatment Plant (m^3/day)	21.1
Organic Capacity (PE) - As Constructed	225
Organic Capacity (PE) - Collected Load (peak week)[Note1]	75
Organic Capacity (PE) - Remaining	150
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 - UMLAGH 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)
There is no Sludge and Other Input data for the Treatment Plant included in the AER.							

2.2 CARRIGART VILLAGE WWTP - TREATED DISCHARGE

2.2.1 INFLUENT MONITORING SUMMARY - CARRIGART VILLAGE 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
BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l	6	213	146
Total Nitrogen mg/l	2	50.6	25.46
Suspended Solids mg/l	6	115	80.17
Total Phosphorus (as P) mg/l	1	6.16	6.16
COD-Cr mg/l	6	547	340
Hydraulic Capacity	N/A	208	87

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'.

2.2.2 EFFLUENT MONITORING SUMMARY - TPEFF0600D0523SW001

Parameter	WWDL ELV (Schedule A)	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% Reduction	6	N/A	N/A	130.67	Fail
Suspended Solids mg/l	50% Reduction	6	N/A	N/A	42.33	Fail

Cause of Exceedance(s):

Refer to incidient section of the report

Significance of Results:

The WWTP is non- compliant with the ELV's set in the Wastewater Discharge Licence.

2.2.3 AMBIENT MONITORING SUMMARY FOR THE TREATMENT PLANT DISCHARGE TPEFF0600D0523SW001

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
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 non compliant with the ELV's set in the wastewater discharge licence.

The ambient monitoring results meet the required EQS. The EQS 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 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.

2.2.4 OPERATIONAL PERFORMANCE SUMMARY - CARRIGART VILLAGE WWTP

2.2.4.1 Treatment Efficiency Report - CARRIGART VILLAGE 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)
COD	8563	6817	20
SS	2019	1066	47
TP	155	N/A	N/A
TN	641	N/A	N/A
cBOD	3677	3291	11

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

2.2.4.2 Treatment Capacity Report Summary - CARRIGART VILLAGE 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.

CARRIGART VILLAGE WWTP	
Peak Hydraulic Capacity (m^3/day) - As Constructed	297
DWF to the Treatment Plant (m^3/day)	99
Current Hydraulic Loading - annual max (m^3/day)	208

Average Hydraulic loading to the Treatment Plant (m^3/day)	87
Organic Capacity (PE) - As Constructed	450
Organic Capacity (PE) - Collected Load (peak week)[Note1]	308
Organic Capacity (PE) - Remaining	142
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.

2.2.5 SLUDGE / OTHER INPUTS - CARRIGART VILLAGE 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)
There is no Sludge and Other Input data for the Treatment Plant included in the AER.							

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	TBC	No	Unknown	Not yet Assessed	Unknown	Unknown	Not Monitored
SW003	212925, 436711	Yes	Low	Not Meeting	Unknown	Unknown	Monitored
TBC	TBC	No	Unknown	Not yet Assessed	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
D0523-SIP:01	Appropriate works to ensure compliance with Condition 1.7 of this licence	C	13/12/2019	yes	At Planning Stage	31/12/2022	

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	No

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

Signed: Date: 17/06/2020

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

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**	
Downstream Monitoring Point SW001/SW002	212925 436711	IE-NW-200-0000 Mulroy Bay Broadwater	No	No	No	No	Good
Upstream Monitoring Point SW002		Unnamed tributary of Magheramagron IE_NW_38C130960	No	No	No	No	Unassigned
Downstream Monitoring Point SW001/SW002		Unnamed tributary of Magheramagron IE_NW_38C130960	No	No	No	No	Unassigned

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)	Ortho phosphate	Total Nitrogen	TON	Dissolved Inorganic Nitrogen DIN	Total Phosphorus	E coli	Faecal Coliforms (E. coli)	Enterococci	Salinity	SSRS	Chlorophyll
District						pH units	°C	us/cm	% Sat	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	MPN/100mls	cfu/100mls	cfu/100mls	PSU	Descriptive	ug/l
Letterkenny	Magheramagorgan River	February	Carrigart No. 2(Umhlagh) - Upstream	192500767	26-Feb-19	7.4	10.2	323	99.3	1	NT	25	0.093	NT	NT	0.081	NT	NT	NT	NT	200	< 100	80	NT	NT	NT
Letterkenny	Magheramagorgan River	February	Carrigart No. 2(Umhlagh) - Downstream	192500768	26-Feb-19	7.5	10.2	369	98.4	1	NT	< 6	0.361	NT	NT	0.079	NT	NT	NT	NT	4200	26600	460	NT	NT	NT
Letterkenny	Magheramagorgan River	August	Carrigart No. 2(Umhlagh) - Upstream	192503230	08-Aug-19	7.7	16.6	318	97.8	3	NT	9	0.537	NT	NT	0.16	NT	NT	NT	NT	>24196	>24196	NT	NT	NT	NT
Letterkenny	Magheramagorgan River	August	Carrigart No. 2(Umhlagh) - Downstream	192503232	08-Aug-19	7.4	16	137	100.2	1	NT	<6	0.029	NT	NT	<0.05	NT	NT	NT	NT	598	241	NT	NT	NT	NT
Letterkenny	Magheramagorgan River	October	Carrigart No. 2(Umhlagh) - Upstream	192504393	15-Oct-19	7.2	10.1	265	104.1	2	NT	10	0.209	NT	NT	0.07	NT	NT	NT	NT	6488	390	1169	NT	NT	NT
Letterkenny	Magheramagorgan River	October	Carrigart No. 2(Umhlagh) - Downstream	192504395	15-Oct-19	7.4	10.2	294	104.7	2	NT	<6	0.18	NT	NT	0.07	NT	NT	NT	NT	2720	420	1017	NT	NT	NT
Letterkenny	Magheramagorgan River	November	Carrigart No. 2(Umhlagh) - Upstream	192504815	15-Nov-19	7.3	8.6	325	91.1	1	NT	<6	0.045	NT	NT	0.05	NT	NT	NT	NT	573	422	20	NT	NT	NT
Letterkenny	Magheramagorgan River	November	Carrigart No. 2(Umhlagh) - Downstream	192504817	15-Nov-19	7.4	8	320	90.4	3	NT	7	0.233	NT	NT	0.06	NT	NT	NT	NT	19863	14136	610	NT	NT	NT
Letterkenny	Magheramagorgan River	November	Carrigart No. 2(Umhlagh) - Upstream	192504944	25-Nov-19	7.4	10	320	95	1	NT	11	0.06	NT	NT	<0.05	NT	NT	NT	NT	800	630	<100	NT	NT	NT
Letterkenny	Magheramagorgan River	November	Carrigart No. 2(Umhlagh) - Downstream	192504946	25-Nov-19	7.4	10.2	348	97.2	2	NT	<6	0.863	NT	NT	0.13	NT	NT	NT	NT	365400	15850	2900	NT	NT	NT
Letterkenny	Magheramagorgan River	December	Carrigart No. 2(Umhlagh) - Upstream	192505199	05-Dec-19	7.4	7.7	339	88.7	1	NT	<6	0.042	NT	NT	0.06	NT	NT	NT	NT	1723	785	NT	NT	NT	NT
Letterkenny	Magheramagorgan River	December	Carrigart No. 2(Umhlagh) - Downstream	192504946	05-Dec-19	7.4	7.4	396	76.4	6	NT	13	1.11	NT	NT	0.12	NT	NT	NT	NT	>24196	8664	NT	NT	NT	NT

Entity	Category	MONTH	Location	Lab Ref	Date	Ammonia (as N)	BOD	Chlorophyll	COD	Dissolved Inorganic Nitrogen (as N)	Dissolved Oxygen % Saturation	E coli	Intestinal Enterococci	Faecal Coliforms (E. coli)	Orthophosphate	pH	Suspended Solids	Temperature	Total Nitrogen N	Salinity	Total Oxidised Nitrogen N
						(mg/l)	(mg/l)	mg/m3	(mg/l)	(mg/l)	(mg/l)	mpn/100 mls	cfu/100	cfu/100mls	(mg/l)	pH Units	(mg/l)	°C	(mg/l)	g/kg	(mg/l)
Mulroy Bay	Coastal Water Body	April	Carrigart	192502312	10-Apr-19	NT	<1	NT	NT	<0.02	87.6	0	0	18	NT	8.04	64.7	8.9	NT	32.1	NT
Mulroy Bay	Coastal Water Body	June	Carrigart	192503657	06-Jun-19	NT	2.58	NT	NT	<0.2	98.3	>2420	32	>2420	NT	6.81	<6	11.8	NT	15.6	NT
Mulroy Bay	Coastal Water Body	September	Carrigart	192505397	03-Sep-19	NT	<2	NT	NT	<0.3	91.5	9	>200	196	NT	7.76	105.9	15.9	NT	28.31	NT
Mulroy Bay	Coastal Water Body	November	Carrigart	192505415	19-Nov-19	NT	2.35	NT	NT	<0.2	100.6	0	28	180	NT	7.7	11	5.8	NT	NT	NT