

Annual Environmental Report

2020



Carrigart

D0523-01

CONTENTS

1 EXECUTIVE SUMMARY AND INTRODUCTION TO THE 2020 AER

- 1.1 ANNUAL STATEMENT OF MEASURES
- 1.2 TREATMENT SUMMARY
- 1.3 ELV OVERVIEW
- 1.4 LICENSE SPECIFIC REPORT INCLUDED IN AER

2 TREATMENT PLANT PERFORMANCE AND IMPACT SUMMARY

- 2.1 UMLAGH WWTP - 2020 - TREATED DISCHARGE
 - 2.1.1 INFLUENT SUMMARY - UMLAGH WWTP - 2020
 - 2.1.2 EFFLUENT MONITORING SUMMARY - UMLAGH WWTP - 2020 -
 - 2.1.3 AMBIENT MONITORING SUMMARY FOR THE TREATMENT PLANT DISCHARGE -
 - 2.1.4 OPERATIONAL REPORTS SUMMARY FOR UMLAGH WWTP - 2020
 - 2.1.5 SLUDGE/OTHER INPUTS TO UMLAGH WWTP - 2020
- 2.2 CARRIGART VILLAGE WWTP - 2020 - TREATED DISCHARGE
 - 2.2.1 INFLUENT SUMMARY - CARRIGART VILLAGE WWTP - 2020
 - 2.2.2 EFFLUENT MONITORING SUMMARY - CARRIGART VILLAGE WWTP - 2020 -
 - 2.2.3 AMBIENT MONITORING SUMMARY FOR THE TREATMENT PLANT DISCHARGE -
 - 2.2.4 OPERATIONAL REPORTS SUMMARY FOR CARRIGART VILLAGE WWTP - 2020
 - 2.2.5 SLUDGE/OTHER INPUTS TO CARRIGART VILLAGE WWTP - 2020

3 COMPLAINTS AND INCIDENTS

- 3.1 COMPLAINTS SUMMARY
- 3.2 REPORTED INCIDENTS SUMMARY
 - 3.2.1 SUMMARY OF INCIDENTS
 - 3.2.2 SUMMARY OF OVERALL INCIDENTS

4 INFRASTRUCTURAL ASSESSMENT AND PROGRAMME OF IMPROVEMENTS

- 4.1 STORM WATER OVERFLOW IDENTIFICATION AND INSPECTION REPORT
 - 4.1.1 SWO IDENTIFICATION AND INSPECTION SUMMARY REPORT
- 4.2 REPORT ON PROGRESS MADE AND PROPOSALS BEING DEVELOPED TO MEET THE IMPROVEMENT PROGRAMME REQUIREMENTS
 - 4.2.1 SPECIFIED IMPROVEMENT PROGRAMME SUMMARY
 - 4.2.2 IMPROVEMENT PROGRAMME SUMMARY

4.2.3 SEWER INTEGRITY RISK ASSESSMENT

5 LICENCE SPECIFIC REPORTS

5.1 PRIORITY SUBSTANCES ASSESSMENT

5.2 SHELLFISH IMPACT ASSESSMENT

6 CERTIFICATION AND SIGN OFF

6.1 SUMMARY OF AER CONTENTS

7 APPENDIX

7.1 OTHER

1 EXECUTIVE SUMMARY AND INTRODUCTION TO THE 2020 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.

1.2 TREATMENT SUMMARY

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

- Umlagh WWTP - 2020 with a Plant Capacity PE of 225, the treatment type is 1 - Primary treatment
- CARRIGART VILLAGE WWTP - 2020 with a Plant Capacity PE of 675, 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 - 2020	Treated	Non-Compliant	CBOD, TSS
TPEFF0600D0523SW001	CARRIGART VILLAGE WWTP - 2020	Treated	Non-Compliant	CBOD, TSS

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 - 2020 - TREATED DISCHARGE

2.1.1 INFLUENT MONITORING SUMMARY - UMLAGH WWTP - 2020

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.

Significance of Results:

The annual mean hydraulic loading is less than the peak Treatment Plant Capacity. The annual maximum hydraulic loading is greater 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 - TPEFF0600D0523SW002

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)
Enterococci (Intestinal) cfu/100ml	N/A	N/A	N/A	6	N/A	N/A	48846.67	
Faecal coliforms cfu/100ml	N/A	N/A	N/A	6	N/A	N/A	N/A	
BOD, 5 days with Inhibition (Carbonaceo mg/l	N/A	N/A	20%	6	0	N/A	111.5	Pass
Nitrate (as N) mg/l	N/A	N/A	N/A	6	N/A	N/A	1.02	
Nitrite (as N) mg/l	N/A	N/A	N/A	6	N/A	N/A	0.06	
Ammonia-Total (as N) mg/l	N/A	N/A	N/A	6	N/A	N/A	23.02	
ortho-Phosphate (as P) - unspecified mg/l	N/A	N/A	N/A	6	N/A	N/A	2.85	
Conductivity @20°C µS/cm	N/A	N/A	N/A	6	N/A	N/A	589.67	

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)
E. Coli MPN/100ml	N/A	N/A	N/A	6	N/A	N/A	1769960.33	
pH pH units	N/A	N/A	N/A	6	N/A	N/A	6.87	
COD-Cr mg/l	N/A	N/A	N/A	6	N/A	N/A	292.83	
Suspended Solids mg/l	N/A	N/A	50%	6	1	N/A	118.17	Fail
Total Oxidised Nitrogen (as N) mg/l	N/A	N/A	N/A	6	N/A	N/A	1.08	

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):

Inadequate Infrastructure

Significance of Results:

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

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
Downstream	212852, 437003	CW06007069MB1015	No	No	No	Yes	Good

Where the receiving water body is not a river or where the data is not in EDEN – the Ambient data will be appended.

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.

2.1.4 OPERATIONAL PERFORMANCE SUMMARY - UMLAGH WWTP - 2020

2.1.4.1 Treatment Efficiency Report - Umlagh WWTP - 2020

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	N/A	3256	N/A
TP	N/A	N/A	N/A
SS	N/A	3450	N/A
TN	N/A	N/A	N/A
COD	N/A	8551	N/A

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 - 2020

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 - 2020	
Peak Hydraulic Capacity (m³/day) - As Constructed	150
DWF to the Treatment Plant (m³/day)	50
Current Hydraulic Loading - annual max (m³/day)	160
Average Hydraulic loading to the Treatment Plant (m³/day)	80
Organic Capacity (PE) - As Constructed	225
Organic Capacity (PE) - Collected Load (peak week)^{Note1}	73
Organic Capacity (PE) - Remaining	152

Umlagh WWTP - 2020

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 - 2020

'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 - 2020 - TREATED DISCHARGE

2.2.1 INFLUENT MONITORING SUMMARY - CARRIGART VILLAGE WWTP - 2020

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 (Carbonaceo mg/l)	6	216	95.76
Suspended Solids mg/l	6	79	53.55

Parameters	Number of Samples	Annual Max	Annual Mean
COD-Cr mg/l	6	415	212.47
Hydraulic Capacity	N/A	250	110

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'. 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.

2.2.2 EFFLUENT MONITORING SUMMARY - TPEFF0600D0523SW001

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)
E. Coli MPN/100ml	N/A	N/A	N/A	5	N/A	N/A	3716555.51	
Nitrite (as N) mg/l	N/A	N/A	N/A	6	N/A	N/A	0.06	
ortho-Phosphate (as P) - unspecified mg/l	N/A	N/A	N/A	6	N/A	N/A	2.59	
Nitrate (as N) mg/l	N/A	N/A	N/A	6	N/A	N/A	0.29	

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)
Suspended Solids mg/l	N/A	N/A	50%	6	2	N/A	33.92	Fail
Conductivity @20°C µS/cm	N/A	N/A	N/A	6	N/A	N/A	549.75	
Faecal coliforms cfu/100ml	N/A	N/A	N/A	5	N/A	N/A	N/A	
Total Oxidised Nitrogen (as N) mg/l	N/A	N/A	N/A	6	N/A	N/A	0.33	
BOD, 5 days with Inhibition (Carbonaceo mg/l	N/A	N/A	N/A	6	2	N/A	71.05	Fail
Ammonia-Total (as N) mg/l	N/A	N/A	N/A	6	N/A	N/A	22.12	
Enterococci (Intestinal) cfu/100ml	N/A	N/A	N/A	5	N/A	N/A	216228.74	
COD-Cr mg/l	N/A	N/A	N/A	6	N/A	N/A	201.24	
pH pH units	N/A	N/A	N/A	6	N/A	N/A	7.03	

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):

Inadequate Infrastructure

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
Downstream	212852, 437003	CW06007069MB1015	No	No	No	Yes	Good

Where the receiving water body is not a river or where the data is not in EDEN – the Ambient data will be appended.

Significance of Results:

The WWTP discharge was non-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.

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 - 2020

2.2.4.1 Treatment Efficiency Report - CARRIGART VILLAGE WWTP - 2020

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)
TN	N/A	N/A	N/A
TP	N/A	N/A	N/A
cBOD	3775	2801	26
SS	2111	1337	37
COD	8377	7934	5.29

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 - 2020

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 - 2020	
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)	250

CARRIGART VILLAGE WWTP - 2020	
Average Hydraulic loading to the Treatment Plant (m³/day)	110
Organic Capacity (PE) - As Constructed	675
Organic Capacity (PE) - Collected Load (peak week)^{Note1}	310
Organic Capacity (PE) - Remaining	365
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 - 2020

'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 2020.			

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 2020	1
Number of Incidents reported to the EPA via EDEN in 2020	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 2020 (No. of events)	Total volume discharged in 2020 (m3)	Monitoring Status
SW003	212920, 436714	Yes	Low	Not Meeting	Unknown	Unknown	Monitored

SWO Summary	
How much sewage was discharged via SWOs in the agglomeration in the year (m3)?	39349
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?	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	31/12/2026	

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.

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: 25/03/2021

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 - Other

Municiple	Entity Name	Month	Location
Letterkenny	Magheramagorgan River	Feburary	Carrigart No. 2 - Upstream(Umhlagh)
Letterkenny	Magheramagorgan River	Feburary	Carrigart No. 2 - Downstream(Umhlagh)
Letterkenny	Magheramagorgan River	July	Carrigart No. 2 - Upstream(Umhlagh)
Letterkenny	Magheramagorgan River	July	Carrigart No. 2 - Downstream(Umhlagh)
Letterkenny	Magheramagorgan River	July	Carrigart No. 2 - Upstream(Umhlagh)
Letterkenny	Magheramagorgan River	July	Carrigart No. 2 - Downstream(Umhlagh)
Letterkenny	Magheramagorgan River	August	Carrigart No. 2 - Upstream(Umhlagh)
Letterkenny	Magheramagorgan River	August	Carrigart No. 2 - Downstream(Umhlagh)
Letterkenny	Magheramagorgan River	October	Carrigart No. 2 - Upstream(Umhlagh)
Letterkenny	Magheramagorgan River	October	Carrigart No. 2 - Downstream(Umhlagh)
Letterkenny	Magheramagorgan River	December	Carrigart No. 2 - Upstream(Umhlagh)
Letterkenny	Magheramagorgan River	December	Carrigart No. 2 - Downstream(Umhlagh)

Lab Ref	Date	pH	Temperatu	Conductivi	DO	BOD	COD	SS
202500559	18-Feb-20	7.2	7.1	257	100.4	<1	NT	<6
202500561	18-Feb-20	7.2	7.1	275	102.9	1	NT	8
202501859	13-Jul-20	7.5	14.5	382	102	4	NT	12
202501861	13-Jul-20	7.4	14.6	390	100.7	2	NT	8
202502015	21-Jul-20	7.6	16.6	387	91	1	NT	<6
202502017	21-Jul-20	7.6	15.6	398	91.7	1	NT	<6
202502305	12-Aug-20	7.3	15.2	364	96.4	2	NT	7
202502310	12-Aug-20	7.4	15.4	387	103.4	2	NT	16
202503244	21-Oct-20	7.3	11.5	204	101.8	2	NT	<6
202503246	21-Oct-20	7.3	11.3	217	103.1	2	NT	8
202503792	08-Dec-20	7.4	6.5	244	109.1	1	NT	<6
202503794	08-Dec-20	7.4	6.5	265	110	1	NT	<6

Ammonia	Nitrate (as	Nitrite (as	Orthophos	Total Nitro	TON	Dissolved I	Total Phos	E coli
0.028	NT	NT	<0.05	NT	NT	NT	NT	1296
0.058	NT	NT	0.08	NT	NT	NT	NT	15531
0.029	NT	NT	0.08	NT	NT	NT	NT	4611
0.026	NT	NT	<0.05	NT	NT	NT	NT	2481
0.065	NT	NT	<0.05	NT	NT	NT	NT	12997
0.083	NT	NT	<0.05	NT	NT	NT	NT	17329
0.045	NT	NT	<0.05	NT	NT	NT	NT	1080
0.25	NT	NT	<0.05	NT	NT	NT	NT	1660
0.098	NT	NT	0.1	NT	NT	NT	NT	11199
0.071	NT	NT	0.11	NT	NT	NT	NT	12997
0.062	NT	NT	<0.05	NT	NT	NT	NT	780
0.131	NT	NT	0.06	NT	NT	NT	NT	5172

Enterococc	Faecal Coli	Chlorophyl	Salinity	SSRS
60	862	NT	NT	NT
2000	8664	NT	NT	NT
50	4106	NT	NT	NT
10	2382	NT	NT	NT
50	8664	NT	NT	NT
260	11199	NT	NT	NT
<100	740	NT	NT	NT
<100	1220	NT	NT	NT
440	3169	NT	NT	NT
380	826	NT	NT	NT
140	794	NT	NT	NT
290	4611	NT	NT	NT

Category	MONTH	Location	Lab Ref	Date	Ammonia (BOD	Chlorophyll	Dissolved Inorganic
Coastal Wa	May	Carrigart	202501728	13-May-20	NT	<2	NT	1.19
Coastal Wa	June	Carrigart	202502114	10-Jun-20	NT	<2	NT	<1.19
Coastal Wa	September	Carrigart	202503031	10-Sep-20	NT	2.3	NT	<0.8
Coastal Wa	November	Carrigart	202503867	12-Nov-20	NT	2.6	NT	<1.19

Dissolved Oxygen %	E coli	Intestinal Enterococ	Faecal Coliforms	Orthophos	Temperatu	Total Oxidi	Total Nitro	Salinity
107.2	>2420	>200	>2420	NT	11.5	NT	NT	3.09
99.7	<1	46	39	NT	11	NT	NT	33.6
95.6	>2420	>200	>2420	NT	15.1	NT	NT	20.4
96.8	46	190	74	NT	9	NT	NT	29.72

pH	SS
8.39	14.2
7.96	112
7.87	67.6
7.42	28.9