

# Annual Environmental Report

2022



Ballina

D0016-01

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# 1 EXECUTIVE SUMMARY AND INTRODUCTION TO THE 2022 AER

This Annual Environmental Report has been prepared for D0016-01, Ballina, in Mayo 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)

- Ballina (Mayo) WWTP with a Plant Capacity PE of 25000, the treatment type is 3P - Tertiary P removal .

## 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 |
|---------------------------|---------------------|----------------|-------------------|--------------------------------|
| TPEFF2200D0016SW001       | Ballina (Mayo) WWTP | Treated        | Compliant         | N/A                            |

## 1.4 LICENCE SPECIFIC REPORTING

Assessment / Report

Toxicity of Final Effluent

## 2 TREATMENT PLANT PERFORMANCE AND IMPACT SUMMARY

### 2.1 BALLINA (MAYO) WWTP - TREATED DISCHARGE

#### 2.1.1 INFLUENT MONITORING SUMMARY - BALLINA (MAYO) 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                | 51         | 27          |
| COD-Cr mg/l                                  | 12                | 1411       | 525         |
| BOD, 5 days with Inhibition (Carbonaceo mg/l | 12                | 799        | 238         |
| Suspended Solids mg/l                        | 12                | 689        | 223         |
| Hydraulic Capacity                           | N/A               | 19147      | 2582        |

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'. 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.

## 2.1.2 EFFLUENT MONITORING SUMMARY - TPEFF2200D0016SW003

| 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) |
|--|-----------------------|---|---|--------------------------|-----------------------|--|-------------|--------------------------------|
| <b>COD-Cr mg/l</b>                                     | 125                   | 250   | N/A   | 12                       | N/A                   | N/A  | 24          | Pass                           |
| <b>Suspended Solids mg/l</b>                           | 35                    | 87.5  | N/A   | 12                       | N/A                   | N/A  | 5.77        | Pass                           |
| <b>BOD, 5 days with inhibition (Carbonaceous) mg/l</b> | 25                    | 50  | N/A   | 12                       | N/A                   | N/A  | 2.45        | Pass                           |
| <b>Ammonia-Total (as N) mg/l</b>                       | 10                    | 12  | N/A   | 12                       | N/A                   | N/A  | 0.920       | Pass                           |
| <b>pH pH units</b>                                     | 9                     | 9   | N/A   | 12                       | N/A                   | N/A  | 7.66        | Pass                           |
| <b>ortho-Phosphate (as P) - unspecified mg/l</b>       | 5                     | 6   | N/A   | 12                       | N/A                   | N/A  | 1.18        | Pass                           |
| <b>Total Nitrogen mg/l</b>                             | N/A                   | N/A   | N/A   | 12                       | N/A                   | N/A  | 9.91        |                                |
| <b>Conductivity @20°C µS/cm</b>                        | N/A                   | N/A   | N/A   | 12                       | N/A                   | N/A  | 565         |                                |

| 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) |
|---|-----------------------|---|---|--------------------------|-----------------------|--|-------------|--------------------------------|
| <b>Total Phosphorus (as P) mg/l</b>       | N/A                   | N/A   | N/A   | 12                       | N/A                   | N/A  | 1.68        |                                |
| <b>Nitrite (as N) mg/l</b>                | N/A                   | N/A   | N/A   | 12                       | N/A                   | N/A  | 0.340       |                                |
| <b>Nitrate (as N) mg/l</b>                | N/A                   | N/A   | N/A   | 12                       | N/A                   | N/A  | 8.32        |                                |
| <b>Faecal coliforms cfu/100ml</b>         | N/A                   | N/A   | N/A   | 2                        | N/A                   | N/A  | 9391        |                                |
| <b>Enterococci (Intestinal) cfu/100ml</b> | N/A                   | N/A   | N/A   | 2                        | N/A                   | N/A  | 1812        |                                |
| <b>E. Coli MPN/100ml</b>                  | N/A                   | N/A   | N/A   | 2                        | N/A                   | N/A  | 9172        |                                |

Notes:

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

2 – For pH the WWDA specifies a range of pH 6 - 9

### Cause of Exceedance(s):

Not applicable



### Significance of Results:

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

### 2.1.3 AMBIENT MONITORING SUMMARY FOR THE TREATMENT PLANT DISCHARGE TPEFF2200D0016SW003

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<br>(or as agreed with EPA) | Irish Grid<br>Reference | River Station<br>Code | Bathing<br>Water | Drinking<br>Water | FWPM | Shellfish | WFD Ecological<br>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 coastal/transitional ambient monitoring results do not meet the required EQS. The EQS relates to the Oxygenation and Nutrient Conditions set out in the Surface Water Regulations 2009.

The WWTP discharge was compliant with the ELV's set in the wastewater discharge licence.

The ambient monitoring results do not meet the required EQS at the downstream monitoring location. 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 (as N), concentrations downstream of the effluent discharge is noted.

A deterioration in water quality has been identified, however it is not known if it is 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 - BALLINA (MAYO) WWTP

### 2.1.4.1 Treatment Efficiency Report - Ballina (Mayo) 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) |
|-------------|---------------------------------|----------------------------------|---|
| <b>COD</b>  | 1213380                         | 80669                            | 93  |
| <b>TP</b>   | N/A                             | 5549                             | N/A                                       |
| <b>SS</b>   | 516125                          | 19112                            | 96  |
| <b>cBOD</b> | 550488                          | 8109                             | 99  |
| <b>TN</b>   | 61318                           | 32833                            | 46  |

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

### 2.1.4.2 Treatment Capacity Report Summary - Ballina (Mayo) 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.

| Ballina (Mayo) WWTP   |       |
|---|-------|
| <b>Peak Hydraulic Capacity (m<sup>3</sup>/day) - As Constructed</b> | 13620 |
| <b>DWF to the Treatment Plant (m<sup>3</sup>/day)</b>               | 4540  |
| <b>Current Hydraulic Loading - annual max (m<sup>3</sup>/day)</b>   | 19147 |

| Ballina (Mayo) WWTP  |       |
|--|-------|
| Average Hydraulic loading to the Treatment Plant (m <sup>3</sup> /day) | 2582  |
| Organic Capacity (PE) - As Constructed                                 | 25000 |
| Organic Capacity (PE) - Collected Load (peak week) <sup>Note1</sup>    | 14731 |
| Organic Capacity (PE) - Remaining                                      | 10269 |
| 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 - BALLINA (MAYO) 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) |
|--|----------|-------------|------|-------------------|--|---|--|
| Landfill Leachate (delivered by sewer network) | 54278    | Volume (m3) | 661  | 5.76              | Yes                                    | No  | Yes  |
| Other  | 2350     | Volume (m3) | 29   | 0.02              | Yes                                    | No  | No   |

## 3 COMPLAINTS AND INCIDENTS

### 3.1 COMPLAINTS SUMMARY

A summary of complaints of an environmental nature related to the discharge(s) to water from the WWTP and network is included below.

| Number of Complaints  | Nature of Complaint | Number Open Complaints | Number Closed Complaints |
|---|---------------------|------------------------|--------------------------|
| <b>There were no relevant environmental complaints in 2022.</b> |                     |                        |                          |

### 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 Uisce Éireann 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) |
|------------------------------------|--|-----------------------------|-----------------|--------------|
| <b>Abatement Equipment offline</b> | Plant or equipment maintenance at WWTP | 1                           | No              | Yes          |
| <b>Abatement Equipment offline</b> | Plant or equipment breakdown at WWTP   | 1                           | No              | Yes          |
| <b>Abatement Equipment offline</b> | Plant or equipment breakdown at WWTP   | 1                           | No              | Yes          |

| Incident Type               | Cause                                | No. of incident occurrences | Recurring (Y/N) | Closed (Y/N) |
|-----------------------------|--------------------------------------|-----------------------------|-----------------|--------------|
| Abatement Equipment offline | EO caused by power failure           | 1                           | No              | Yes          |
| Other                       | Plant or equipment breakdown at WWTP | 1                           | No              | No           |
| Uncontrolled release        | Adverse Weather                      | 1                           | No              | Yes          |

### 3.2.2 SUMMARY OF OVERALL INCIDENTS

| Question   | Answer |
|--|--------|
| Number of Incidents in 2022                                    | 6      |
| Number of Incidents reported to the EPA via EDEN in 2022       | 6      |
| 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 (chamber) where applicable | Irish Grid Ref. (outfall) | Included in Schedule of the WWDL | Significance of the overflow(High / Medium / Low) | Assessed against DoEHLG Criteria | No. of times activated in 2022 (No. of events) | Total volume discharged in 2022 (m3) | Monitoring Status |
|--|---------------------------|----------------------------------|---|----------------------------------|--|--------------------------------------|-------------------|
| <b>SW2</b>   | 124978,319144             | Yes                              | Low Significance                                  | Not Meeting Criteria             | Unknown  | Unknown                              | Not Monitored     |
| <b>SW003</b>   | 124858,318960             | Yes                              | Low Significance                                  | Meeting Criteria                 | Unknown  | Unknown                              | Not Monitored     |
| <b>SW4</b>   | 125420,319502             | Yes                              | Low Significance                                  | Not Meeting Criteria             | Unknown  | Unknown                              | Not Monitored     |
| <b>SW5</b>   | 125065,319275             | Yes                              | Low Significance                                  | Meeting Criteria                 | Unknown  | Unknown                              | Not Monitored     |
| <b>SW6</b>   | 124855,319021             | Yes                              | Low Significance                                  | Not Meeting Criteria             | Unknown  | Unknown                              | Not Monitored     |
| <b>SW7</b>   | 124617,318768             | Yes                              | Low Significance                                  | Not Meeting Criteria             | Unknown  | Unknown                              | Not Monitored     |

| WWDL Name / Code for Storm Water Overflow (chamber) where applicable | Irish Grid Ref. (outfall) | Included in Schedule of the WWDL | Significance of the overflow(High / Medium / Low) | Assessed against DoEHLG Criteria | No. of times activated in 2022 (No. of events) | Total volume discharged in 2022 (m3) | Monitoring Status |
|--|---------------------------|----------------------------------|---|----------------------------------|--|--------------------------------------|-------------------|
| SW8  | 124676,318755             | Yes                              | Low Significance                                  | Meeting Criteria                 | Unknown  | Unknown                              | Not Monitored     |
| SW9  | 124630,318667             | Yes                              | Low Significance                                  | Meeting Criteria                 | Unknown  | Unknown                              | Not Monitored     |
| TBC  | 123870,316709             | No                               | Low Significance                                  | Not Meeting Criteria             | Unknown  | Unknown                              | Not Monitored     |
| SW010  | 123299,321077             | Yes                              | Low Significance                                  | Meeting Criteria                 | Unknown  | Unknown                              | Not Monitored     |
| SW006  | 124599,318714             | Yes                              | Low Significance                                  | Meeting Criteria                 | Unknown  | Unknown                              | Not Monitored     |
| TBC  | 124855,319021             | No                               | Low Significance                                  | Not Meeting Criteria             | Unknown  | Unknown                              | Not Monitored     |
| TBC  | 124855,319021             | No                               | Low Significance                                  | Not Meeting Criteria             | Unknown  | Unknown                              | Not Monitored     |
| TBC  | 124015,317622             | No                               | Low Significance                                  | Meeting Criteria                 | Unknown  | Unknown                              | TBC               |

Any TBC SWO(s) were identified as part of the on-going National SWO programme and will be updated in subsequent AER(s) once the information is confirmed.

| SWO Summary  |         |
|--|---------|
| How much sewage was discharged via monitored SWOs in the agglomeration in the year (m3)? | Unknown |

| SWO Summary   |     |
|---|-----|
| 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 a 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 |
|---|---|------------------|-------------------------|------------------------|-----------------|-----------------------------------|----------|
| <b>D0016-SIP:01</b>   | Upgrade SWOs to comply with DoE criteria (SW2)        | C                | 31/12/2011              | Yes                    | Works Completed |                                   |          |
| <b>D0016-SIP:02</b>   | Upgrading of pumping station at Bachelor's Walk (SW2) | C                | 01/05/2009              | Yes                    | Works Completed |                                   |          |

A summary of the status of any other improvements identified by under Condition 5 assessments- is included below.



## 4.2.2 IMPROVEMENT PROGRAMME SUMMARY

| Improvement Identifier                                  | Improvement Description / or any Operational Improvements | Improvement Source | Expected Completion Date | Comments |
|---|---|--------------------|--------------------------|----------|
| <b>No additional improvements planned at this time.</b> |   |                    |                          |          |

## 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 Tables 4.2.1 and 4.2.2.

## 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 a list of the various reports required for this agglomeration and a brief summary of their recommendations.

| Licence Specific Report           | Required by licence | Year included in AER | Included in this AER |
|-----------------------------------|---------------------|----------------------|----------------------|
| <b>Toxicity of Final Effluent</b> | Yes                 | 2021                 | Yes                  |

## 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?  | N/A    |
| 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   | N/A    |
| 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: 27/03/2023

This AER has been produced by Uisce Éireann'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

|  |
|--|
| <b>Appendix</b>                                  |
| <b>Appendix 7.1 - Ambient monitoring summary</b> |
| <b>Appendix 7.2 - Toxicity of Final Effluent</b> |

### Ballina D0016-01 Ambient Monitoring Data

| 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                                  | 125292,319885        | TW22005298MY1012             | No                                 | No             | No   | No        | Moderate   |
| Downstream Monitoring Point                                | 125292, 320420       | TW22005298MY1013             | No                                 | No             | No   | No        | Moderate   |

### 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           | TW22005298MY1012                   | 1.5                                   | TW22005298MY1012                     | 1.5                                     | 1.5        | 0      |
| Ammonia (as N) mg/l | TW22005298MY1013                   | 0.021                                 | TW22005298MY1013                     | 0.22                                    | 0.065      | 0.769% |

### Ballina D0016-01 Ambient Monitoring

| Data           |                    | Station Reference | Dissolved Oxygen | Ammonia N | Biological Oxygen Demand | Calcium | Chloride | Conductivity @ 20°C | E Coli     | Enterococci | Faecal Coliforms |
|----------------|--------------------|-------------------|------------------|-----------|--------------------------|---------|----------|---------------------|------------|-------------|------------------|
|                |                    |                   | %Sat             | mg/l      | mg/l                     | mg/l    | mg/l     | µS/cm               | MPN/100mls | cfu/100mls  | cfu/100mls       |
| 1-March-2022   | Upstream Ambient   | TW22005298MY1012  | 94.2             | 0.017     | <1                       | 60      | 22.7     | 361                 | 60         | 27          | 80               |
| 6-October-2022 | Upstream Ambient   | TW22005298MY1012  | 78.2             | 0.025     | 2                        | 39      | 16.9     | 221                 | 1400       | 28          | 1400             |
| 1-March-2022   | Downstream Ambient | TW22005298MY1013  | 95               | 0.015     | <1                       | 65      | 24.3     | 391                 | 96         | 23          | 100              |
| 6-October-2022 | Downstream Ambient | TW22005298MY1013  | 79.4             | 0.028     | 2                        | 44      | 44.8     | 322                 | 290        | 130         | 720              |

| Fluoride | Magnesium | Sodium | Iron | Potassium | Total Hardness | pH       | Sulphate | Temperature | Total Nitrogen N | Nitrate N |
|----------|-----------|--------|------|-----------|----------------|----------|----------|-------------|------------------|-----------|
| mg/l     | mg/l      | mg/l   | ug/l | mg/l      | mg/l           | pH units | mg/l     | Degrees C   | mg/l             | mg/l      |
| <0.2     | 5         | 13     | 310  | 2         | 129            | 8.1      | 8.55     | 7.6         | 0.862            | 0.622     |
| 0.06     | 3         | 9      | 1422 | 2         | 104            | 7.8      | 14       | 13.1        | 1.05             | 0.218     |
| <0.2     | 6         | 15     | 319  | 2         | 153            | 8        | 9.2      | 7.8         | 0.892            | 0.865     |
| 0.07     | 5         | 23     | 1536 | 2         | 121            | 7.9      | 17.6     | 13          | 0.889            | 0.221     |

**Customer**

Laura Finnegan  
Complete Laboratory Solutions  
Rosmuc  
Connemara  
Co. Galway

## Certificate Of Analysis

**Job Number:** 22-18055  
**Issue Number:** 1  
**Report Date:** 8 April 2022

**Site:** Not Applicable  
**PO Number:** PO5338  
**Date Samples Received:** 07/03/2022

Please find attached the results for the samples received at our laboratory on 07/03/2022.

Should you have any queries regarding the report or require any further services, we would be happy to discuss your requirements. For additional information about the company please log-on to our website at the above address.

Thank you for choosing City Analysts Limited. We look forward to assisting you again.

**Authorised By:**



Debbie Kelly  
Laboratory Supervisor

**Authorised Date:** 8 April 2022

**Notes are not INAB accredited**

Results relate only to the items tested.  
Information on methods of analysis and uncertainty of measurement is available on request.  
Any opinions or interpretations indicated are outside the scope of our INAB accreditation.  
This test report shall not be reproduced except in full or with written approval of City Analysts Limited.



## Certificate Of Analysis

### Customer

Laura Finnegan  
Complete Laboratory Solutions  
Rosmuc  
Connemara  
Co. Galway

**Report Reference:** 22-18055

**Report Version:** 1

**Site:** Not Applicable

**Sample Description:** 1420025

**Date of Sampling:** 01/03/2022

**Sample Type:** Effluent (Final)

**Time of Sampling:** 11:15

**Lab Reference Number:** 637225

**Date Sample Received:** 07/03/2022

| Site / Method Ref.               | Analysis Start Date | Parameter                            | Result                       | Units       | PV Value (Drinking Water Only) |
|----------------------------------|---------------------|--------------------------------------|------------------------------|-------------|--------------------------------|
| *U                               | 11/03/2022          | Inhibitory effect to Vibrio fischeri | 6.6% giving 15.2 toxic units | %vol/vol    | -                              |
| S/S3238                          | 08/03/2022          | 48 h LC50 to Tisbe battagliai        | >32% giving <3.1 toxic units | %vol/vol    | -                              |
| Toxicity Chemistry Suite Shannon |                     |                                      |                              |             |                                |
| S/S3011#                         | 07/03/2022          | Conductivity @ 20°C                  | 1010                         | uS/cm @20°C | -                              |
| S/S1003#                         | 07/03/2022          | Dissolved Oxygen                     | 9.13                         | mg/l O2     | -                              |
| S/S1041                          | 07/03/2022          | PH                                   | 8.34                         | pH Unit     | -                              |
| S/S3011                          | 07/03/2022          | Salinity                             | 0.5                          | ppt         | -                              |

### Comments

Sampling time/date has been provided but is outside the recommended timeframe on receipt.

# = INAB Accredited, U = UKAS Accredited, \* = Subcontracted

#### Note:

PV Value is the parametric value, taken from European Communities, (Drinking Water) Regulations, 2014. S.I. No. 122 of 2014 and relates only to drinking water samples.

For queries on results, please contact us within two weeks of the report date to ensure that we can accommodate your query as samples cannot be stored indefinitely.

NAC & ATC - No abnormal change and acceptable to customers.

TVC - Total viable count

Site D = Analysed at City Analysts Dublin. Site S = Analysed at City Analysts Shannon



### CERTIFICATE OF ANALYSIS

Client : Jackie O'Hara (WWTP)  
Mayo County Council  
Irish Water, C/O Mayo County Council  
Water Services, Aras an Chontae, The Mall  
Castlebar, Co. Mayo

Report No. : 479714  
Date of Receipt : 01/03/2022  
Start Date of Analysis : 01/03/2022  
Date of Report : 08/04/2022  
Order Number :  
Sample taken by : CLS

| Lab No  | Sample Description   | Test  | Ref. | Result                          | Units        |
|---------|--|---|------|---------------------------------|--------------|
| 1420025 | Ballina Effluent Composite 01.03.2022@11.15<br>(Easting 125206, Northing 320206)<br>Toxicity testing | Toxicity, 48h LC50 to <i>Tisbe battagliai</i> (marine crustacean) | S    | >32% giving<br><3.1 toxic units | Null<br>Unit |
|         |  | Toxicity, 30 min EC50 to <i>Vibrio fischeri</i> (bacteria)        | S    | 6.6% giving<br>15.2 toxic units | Null<br>Unit |

Approved by:

**AnnMarie Nee**  
**Environmental**  
**Services Administrator**

See below for test specifications and accreditation status.  
This report only relates to items tested and shall not be reproduced but in full with the permission of CLS.  
est. is an estimated count.  
CLS will test food, water and swabs samples within 24 hours of receipt.  
Where samples have been taken by the Client, results apply to the samples as received.



Complete Laboratory Solutions

Complete Laboratory Solutions

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[web] [www.cls.ie](http://www.cls.ie)

| In-House Test | Specification | Measurement of Uncertainty | 17025 | GMP/FDA* | ISO** |
|---------------|---------------|----------------------------|-------|----------|-------|
|---------------|---------------|----------------------------|-------|----------|-------|

\*Analysis carried out in a GMP approved, FDA inspected facility (MedPharma site only).

\*\*Laboratory Analysis, Sampling, Food Safety Monitoring and Analysts on Contract are all ISO 9001 certified.

For environmental samples of lakes and rivers sampled by CLS, accreditation is not being claimed on this report.