Annual Environmental Report

2021

Ballina

D0016-01

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1 EXECUTIVE SUMMARY AND INTRODUCTION TO THE 2021 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.

There was no major capital or operational changes undertaken

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	Included in the AER
Toxicity of Final Effluent	Yes

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
COD-Cr mg/l	12	1424	671
Total Nitrogen mg/l	12	62	23
BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l	12	809	319
Suspended Solids mg/l	12	818	212
Hydraulic Capacity	N/A	22511	9007

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 - 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)
COD-Cr mg/l	125	250	N/A	12	N/A	N/A	22	Pass
Suspended Solids mg/l	35	88	N/A	12	N/A	N/A	3.81	Pass
BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l	25	50	N/A	12	N/A	N/A	2.29	Pass
Ammonia-Total (as N) mg/l	10	12	N/A	12	N/A	N/A	0.700	Pass
pH units	9.00	9.00	N/A	12	N/A	N/A	7.67	Pass
ortho-Phosphate (as P) - unspecified mg/l	5.00	6.00	N/A	12	N/A	N/A	0.700	Pass
Nitrite (as N) mg/l	N/A	N/A	N/A	12	N/A	N/A	0.185	
Total Nitrogen mg/l	N/A	N/A	N/A	12	N/A	N/A	7.62	
Total Oxidised Nitrogen (as N) mg/l	N/A	N/A	N/A	1	N/A	N/A	3.17	

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)
Conductivity @20°C µS/cm	N/A	N/A	N/A	12	N/A	N/A	487	
Total Phosphorus (as P) mg/l	N/A	N/A	N/A	12	N/A	N/A	0.902	
Enterococci (Intestinal) cfu/100ml	N/A	N/A	N/A	2	N/A	N/A	6817	
Faecal coliforms cfu/100ml	N/A	N/A	N/A	2	N/A	N/A	49820	
E. Coli MPN/100ml	N/A	N/A	N/A	2	N/A	N/A	49512	
Nitrate (as N) mg/l	N/A	N/A	N/A	12	N/A	N/A	6.85	

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 (or as agreed with EPA)	Irish Grid Reference	River Station Code	Bathing Water	Drinking Water	FWPM	Shellfish	WFD Ecological 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 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.

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

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)
COD	2384796	78322	97
TP	N/A	3148	N/A
SS	752119	13307	98
TN	82940	26603	68
cBOD	1132667	7994	99

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	
Peak Hydraulic Capacity (m^3/day) - As Constructed	13620
DWF to the Treatment Plant (m^3/day)	4540
Current Hydraulic Loading - annual max (m^3/day)	22511
Average Hydraulic loading to the Treatment Plant (m^3/day)	9007
Organic Capacity (PE) - As Constructed	25000
Organic Capacity (PE) - Collected Load (peak week)[Note1]	15888
Organic Capacity (PE) - Remaining	9112
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)	63477	Volume (m3)	772	1.93	Yes	No	Yes
Other	1694	Volume (m3)	20.62	0.05	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
1	Discharge to waters	1	0

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)
Abatement Equipment offline	Plant or equipment breakdown at WWTP	1	No	Yes
Spillage	Dosing pump failure or maintenance at WWTP	1	No	No
Uncontrolled release	EO caused by power failure	1	No	No

3.2.2 SUMMARY OF OVERALL INCIDENTS

Question	Answer
Number of Incidents in 2021	3
Number of Incidents reported to the EPA via EDEN in 2021	3
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 2021 (No. of events)	Total volume discharged in 2021 (m3)	Monitoring Status
TBC	123870.2, 316708.73	No	Low	Not Meeting	Unknown	Unknown	Not Monitored
TBC	124855.05, 319021.15	No	Low	Not Meeting	Unknown	Unknown	Not Monitored
TBC	124855.14, 319021.07	No	Low	Not Meeting	Unknown	Unknown	Not Monitored
TBC	124015, 317622	No	Low	Meeting	Unknown	Unknown	Not Monitored
SW003	124858, 318960	Yes	Low	Meeting	Unknown	Unknown	Not Monitored
SW006	124599, 318714	Yes	Low	Meeting	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 2021 (No. of events)	Total volume discharged in 2021 (m3)	Monitoring Status
SW010	123298, 321077	Yes	Low	Meeting	Unknown	Unknown	Not Monitored
SW2	124978, 319144	Yes	Low	Not Meeting	Unknown	Unknown	Not Monitored
SW4	125420, 319502	Yes	Low	Not Meeting	Unknown	Unknown	Not Monitored
SW5	125065, 319274	Yes	Low	Meeting	Unknown	Unknown	Not Monitored
SW6	124855, 319021	Yes	Low	Not Meeting	Unknown	Unknown	Not Monitored
SW7	124616, 318767	Yes	Low	Not Meeting	Unknown	Unknown	Not Monitored
SW8	124675, 318755	Yes	Low	Meeting	Unknown	Unknown	Not Monitored
SW9	124630, 318666	Yes	Low	Meeting	Unknown	Unknown	Not Monitored

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 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?	No
Have the EPA been advised of any additional SWOs / changes to Schedule C3 and A4 under Condition 1.7?	No

4.2 REPORT ON PROGRESS MADE AND PROPOSALS BEING DEVELOPED TO MEET THE IMPROVEMENT PROGRAMME REQUIREMENTS.

4.2.1 SPECIFIED IMPROVEMENT PROGRAMME SUMMARY

A wastewater discharge licence may require a number of reports on specific subject areas to be prepared for the agglomeration in question. These reports are submitted to the EPA as part of the Annual Environmental Report. This section provides 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
D0016-SIP:01	Upgrade SWOs to comply with DoE criteria (SW2)	C	31/12/2011	Yes	Works Completed		
D0016-SIP:02	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
No additional improvements planned at this time.				

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
Toxicity of Final Effluent	Yes	2017	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
Has a Technical amendment/licence review application been submitted to the Agency by IW?	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: 14/04/2022

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

Ballina D0016-01 Ambient Monitoring

Data		Station Reference	Dissolved Oxygen	Ammo-nia N	Biological Oxygen De-mand	Calcium	Chlo-ride	Conductivity @ 20°C	E Coli	Entero-cocci	Faecal Coli-forms	Fluo-ride	Magne-sium
			%Sat	mg/l	mg/l	mg/l	mg/l	µS/cm	MPN/100mls	cfu/100mls	cfu/100mls	mg/l	mg/l
2-March-2021	Upstream Ambient	TW22005298MY1012	86.6	0.021	<1	52	17.7	327	21	880	42	<0.2	4
8-October-2021	Upstream Ambient	TW22005298MY1012	84.4	<0.005	1	42	12.2	255	600	670	1000	<0.2	2
2-March-2021	Downstream Ambient	TW22005298MY1013	82.9	0.009	<1	57	17.7	350	360	27	490	<0.2	5
8-October-2021	Downstream Ambient	TW22005298MY1013	81.1	<0.005	1	39	13.6	259	600	72	1000	<0.2	3

Data		Station Reference	Sodium	Iron	Potassium	Total Hard-ness	pH	Sulphate	Temperature	Total Ni-trogen N	Nitrate N
			mg/l	ug/l	mg/l	mg/l	pH units	mg/l	Degrees C	mg/l	mg/l
2-March-2021	Upstream Ambient	TW22005298MY1012	10	317	1	114	8	7.95	7.3	0.619	0.499
8-October-2021	Upstream Ambient	TW22005298MY1012	9	1120	2	118	7.8	<5	14.9	0.968	0.23
2-March-2021	Downstream Ambient	TW22005298MY1013	10	261	1	131	8.1	8.2	7.4	0.699	0.541
8-October-2021	Downstream Ambient	TW22005298MY1013	9	771	1	118	7.8	<5	14.8	0.862	0.22

Ambient Points

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	TW22005298MY1013	1	1.500	0
Ammonia (as N) mg/l	TW22005298MY1012	0.013	TW22005298MY1013	0.007	0.065	-9.231

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Customer

Laura Finnegan

Complete Laboratory Solutions
Rosmuc
Connemara
Co. Galway

Certificate Of Analysis

Job Number: 21-12520
Issue Number: 1
Report Date: 1 February 2022

Site: Not Applicable
PO Number: 5097S
Date Samples Received: 06/12/2021

Please find attached the results for the samples received at our laboratory on 06/12/2021.

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:

Rimante Radzyte
Laboratory Technician

Sent By: Louise Morrow **Sent Date:** 1 February 2022

Louise Morrow

Notes:

Results relate only to the items tested.
Information on methods of analysis and performance characteristics is available on request.
Any opinions or interpretations indicated are outside the scope of our INAB accreditation.
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Certificate Of Analysis

Customer

Laura Finnegan

Complete Laboratory Solutions
Rosmuc
Connemara
Co. Galway

Report Reference: 21-12520

Report Version: 1

Site: Not Applicable

Sample Description: 1387819

Sample Type: Effluent (Final)

Lab Reference Number: 619701

Date of Sampling: 03/12/2021

Time of Sampling: 00:00

Date Sample Received: 06/12/2021

Site / Method Ref.	Analysis Start Date	Parameter	Result	Units
*U	12/12/2021	Inhibitory effect to Vibrio fischeri	>100% giving <1 toxic unit	%vol/vol
S/S3238#	08/12/2021	48 h LC50 to Tisbe battagliai	>32% giving <3.1 toxic units	%vol/vol
Toxicity Chemistry Suite Shannon				
S/S3011#	06/12/2021	Conductivity @ 20°C	777	uS/cm @20°C
S/S1003#	06/12/2021	Dissolved Oxygen	6.89	mg/l O2
S/S1041#	06/12/2021	PH	7.11	pH Unit
S/S3011	06/12/2021	Salinity	0.4	ppt

= 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

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Customer

Laura Finnegan

Complete Laboratory Solutions
Rosmuc
Connemara
Co. Galway

Report Reference: 21-12520

Report Version: 1

Site: Not Applicable

Sample Description: 1387819

Sample Type: Effluent (Final)

Lab Reference Number: 619701

Date of Sampling: 03/12/2021

Time of Sampling: 00:00

Date Sample Received: 06/12/2021

Test Parameter	Concentration % vol. / vol.	Toxic Units	95% Confidence Limits % vol./vol.	Method of Calculation

Comments

Test Method(s): (see Appendix 1)

Method 2: Marine Bacterium
Method 3: Marine Copepod

= 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

Appendix 1

Toxicity Test Methods and Procedures

1. Freshwater Crustacean

Method 3235 based on ISO 6341:2012: 'Water quality – Determination of the inhibition of the mobility of Daphnia magna Straus (Cladocera, Crustacea)

3. Marine Copepod

Method 3238 based on ISO 14669:1999: 'Water quality – Determination of acute lethal toxicity to marine copepods (Copepoda, Crustacea)'

2. Marine Bacterium

Method 3239 based on ISO 11348-3:2007: 'Water quality - Determination of the inhibitory effect of water samples on the light emission of Vibrio fischeri (Luminescent bacteria test) – Part 3: Method using freeze-dried bacteria'

4. Marine Algae

Method 3237 based on ISO 10253:2006: 'Water quality - Marine algal growth inhibition test with Skeletonema costatum and Phaeodactylum tricornutum'

5. Freshwater Algae

Method 3236 based on ISO 8692:2012: 'Water quality – Freshwater algal growth inhibition test with unicellular green algae'

6. Freshwater Plant

Based on ISO 20079:2005: 'Water quality – Determination of the toxic effect of water constituents and waste water to duckweed (Lemna minor) – Duckweed growth inhibition test'

7. Marine Fish

Method based on OECD 1992: Guideline 203: - 'Fish, acute toxicity test'

8. Freshwater Fish

Based on OECD 1992: Guideline 203: - 'Fish, acute toxicity test'

9. Estuarine Crustacean

Based on MAFF SOP No. BEG/030:1996: 'Brown Shrimp (Crangon crangon) 96 h acute toxicity for liquid effluents and wastes'

10. Sampling

Based on ISO 5667-16:2017: 'Water quality – Sampling - Part 16: Guidance on biotesting of samples'

11. Eluate Generation

Based on DIN 38 414 part 4, 1984: – 'Sludge and Sediments (Group S) – Determination of leachability by water (S4)

Complete Laboratory Solutions
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[web] www.cls.ie

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.	:	471645
Date of Receipt	:	01/12/2021
Start Date of Analysis	:	01/12/2021
Date of Report	:	03/02/2022
Order Number	:	51638498
Sample taken by	:	CLS

Lab No	Sample Description	Test	Ref.	Result	Units
1387819	Ballina Effluent Composite 01.12.2021@10.25 (Easting 125206, Northing 320206) Toxicity testing	Toxicity, 48h LC50 to Tisbe battagliai (marine crustacean)	S	>32% giving <3.1 toxic units	Null Unit
		Toxicity, 30 min EC50 to Vibrio fischeri (bacteria)	S	>100% giving <1 toxic unit	Null Unit

Approved by:

AnnMarie Nee
Environmental
Services Administrator

See below for test specifications and accreditation status.
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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.

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Complete Laboratory Solutions,
MedPharma Division,
Unit 3a, Small Business Park, Mervue, Galway

Symbol Reference - I:17025 accredited; S:Subcontracted; R:Analysis carried out in Ros Muc; M:Analysis carried out in MedPharma; F:Field test; O:Tested outside hold time.

Complete Laboratory Solutions
[Tel] 091 574355
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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.

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