

Annual Environmental Report

2022



Belmullet

D0074-01

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7.1 AMBIENT MONITORING SUMMARY

1 EXECUTIVE SUMMARY AND INTRODUCTION TO THE 2022 AER

This Annual Environmental Report has been prepared for D0074-01, Belmullet, 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)

- Belmullet WWTP with a Plant Capacity PE of 2500, the treatment type is 3N - Tertiary N 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
TPEFF2200D0074SW001	Belmullet WWTP	Treated	Compliant	N/A

1.4 LICENCE SPECIFIC REPORTING

Assessment / Report

There are no Licence Specific Reports included in this AER.

2 TREATMENT PLANT PERFORMANCE AND IMPACT SUMMARY

2.1 BELMULLET WWTP - TREATED DISCHARGE

2.1.1 INFLUENT MONITORING SUMMARY - BELMULLET 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 (Carbonaceo mg/l	11	266	105
Total Phosphorus (as P) mg/l	11	9.90	3.46
Suspended Solids mg/l	11	468	137
Total Nitrogen mg/l	11	33	16
COD-Cr mg/l	11	753	288
Hydraulic Capacity	N/A	3677	955

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 - TPEFF2200D0074SW005

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)
Faecal coliforms cfu/100ml	1000	1000	N/A	4	N/A	N/A	138	Pass
COD-Cr mg/l	125	250	N/A	11	N/A	N/A	36	Pass
Suspended Solids mg/l	35	87.5	N/A	11	N/A	N/A	12	Pass
BOD, 5 days with Inhibition (Carbonaceo mg/l	25	50	N/A	11	N/A	N/A	5.20	Pass
Total Nitrogen mg/l	15	18	N/A	11	N/A	N/A	4.54	Pass
Ammonia-Total (as N) mg/l	10	12	N/A	11	N/A	N/A	1.87	Pass
pH pH units	9	9	N/A	11	N/A	N/A	7.66	Pass
Conductivity @20°C µS/cm	N/A	N/A	N/A	11	N/A	N/A	1521	
Enterococci (Intestinal) cfu/100ml	N/A	N/A	N/A	4	N/A	N/A	183	

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)
E. Coli MPN/100ml	N/A	N/A	N/A	4	N/A	N/A	88	
Nitrate (as N) mg/l	N/A	N/A	N/A	11	N/A	N/A	1.90	
Nitrite (as N) mg/l	N/A	N/A	N/A	11	N/A	N/A	0.040	

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 TPEFF2200D0074SW005

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
Downstream	77584, 337782	CW22005291BH1004	No	No	No	No	Good

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 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 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 - BELMULLET WWTP

2.1.4.1 Treatment Efficiency Report - Belmullet 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	32370	1560	95
TP	1066	N/A	N/A
COD	88495	10782	88

Parameter	Influent mass loading (kg/year)	Effluent mass emission (kg/year)	Efficiency (% reduction of influent load)
TN	4802	1361	72
SS	42087	3690	91

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

2.1.4.2 Treatment Capacity Report Summary - Belmullet 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.

Belmullet WWTP	
Peak Hydraulic Capacity (m ³ /day) - As Constructed	1685
DWF to the Treatment Plant (m ³ /day)	564
Current Hydraulic Loading - annual max (m ³ /day)	3677
Average Hydraulic loading to the Treatment Plant (m ³ /day)	955
Organic Capacity (PE) - As Constructed	2500
Organic Capacity (PE) - Collected Load (peak week) ^{Note1}	1429
Organic Capacity (PE) - Remaining	1071
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 - BELMULLET 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)
Other	60	Volume (m3)	0.73	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
There were no relevant environmental complaints in 2022.			

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)
Abatement Equipment offline	Plant or equipment breakdown at WWTP	1	No	Yes
Abatement Equipment offline	Plant or equipment maintenance at WWTP	1	No	Yes
Abatement Equipment offline	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	Adverse Weather	1	No	Yes
Abatement Equipment offline	Plant or equipment breakdown at WWTP	1	No	Yes
Abatement Equipment offline	Plant or equipment breakdown at WWTP	1	No	Yes
Breach of ELV	Shock load to the WWTP	1	No	Yes
Other	Shock load to the WWTP	1	No	Yes
Uncontrolled release	Network Infrastructure	1	Yes	No

3.2.2 SUMMARY OF OVERALL INCIDENTS

Question	Answer
Number of Incidents in 2022	9
Number of Incidents reported to the EPA via EDEN in 2022	9
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
SWO06	70153,332798	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Monitored
SW007	70599,332395	Yes	TBC	Not yet Assessed	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
Is each SWO identified as not meeting DoEHLG Guidance included in the Programme of Improvements?	N/A
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
D0074-SIP:01	Extension of the collection network	C	31/12/2015	Yes	Works Completed		
D0074-SIP:02	Provision of marine outfall (Primary Discharge Point SW005)	C	31/12/2015	Yes	Works Completed		
D0074-SIP:03	Provision of primary, secondary and tertiary treatment	C	31/12/2015	Yes	Works Completed		
D0074-SIP:04	Provision of two pumping stations -SW006 and SW007 -(Emergency overflows)	C	31/12/2015	Yes	Works Completed		
D0074-SIP:05	SW001 (P) to be discontinued	A	31/12/2015	Yes	Works Completed		

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
D0074-SIP:06	SW002 to be discontinued	A	31/12/2015	Yes	Works Completed		
D0074-SIP:07	SW003 to be discontinued	A	31/12/2015	Yes	Works Completed		
D0074-SIP:08	SW004 to be discontinued	A	31/12/2015	Yes	Works Completed		
D0074-SIP:09	Waste Water Treatment plant and ancillary works	C	31/12/2015	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
Shellfish Impact Assessment	Yes	2021	No

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?	Yes
List reason e.g. additional SWO identified	To include additional SWO identified
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?	Yes
Are all outstanding reports and assessments from previous AERs included as an appendix to this AER	N/A

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

Signed: Date: 28/07/2023

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

Appendix
Appendix 7.1 - Ambient monitoring summary

Ambient Monitoring Results 2022

Ambient Points **WHERE THE AMBIENT POINTS ARE NOT IN EIMS AER – PLEASE COMPLETE THE BELOW TABLE**

Ambient Monitoring Point from WWDL (or as agreed with EPA)	Irish Grid Reference	EPA Feature Coding Tool code	Receiving Waters Designation (Y/N)				WFD Status
			Bathing Water	Drinking Water	FWPM	Shellfish	
Rinroe Beach	E079853, N340856		Yes	No	No	No	Unknown
Elly Bay	E063401, N325335		Yes	No	No	Yes	Unknown
Within 200m radius of SW001 Blacksod Bay	E071304, N330548		Yes	No	No	Yes	Unknown

Elly Beach:

Date:	<i>Enterococci</i> (cfu/100mls)	<i>E.coli</i> (MPN/100mls)	<i>Faecal Coliforms</i> (cfu/100mls)
15/06/2022	0	0	3
12/07/2022	1	0	2
10/08/2022	6	8	8
21/09/2022	3	90	90
Mean:	2.5	24.5	25.75

Rinroe Beach:

Date:	<i>Enterococci</i> (cfu/100mls)	<i>E.coli</i> (MPN/100mls)	<i>Faecal Coliforms</i> (cfu/100mls)
15/06/2022	13	10	10
12/07/2022	4	5	6
10/08/2022	7	4	4
21/09/2022	2	57	57
Mean:	6.5	19	19.25

Within 200m of SW1:

Date:	BOD (mg/l)	TON (mg/l)	pH	Total Nitrogen (mg/l)	Salinity (PSU)	Temp (° C)	DO (mg/l)	PO4-P (mg/l)	Ammonia (mg/l)	DIN (mg/l)
15/06/2022	1	0.1	8.2	0.5	34	13.9	89.5	0.01	0.043	0.043
21/09/2022	3	0.1	8.1	0.5	34.3	16	100.2	0.01	0.49	0.49
Mean:	2	0.1	8.15	0.5	34.15	14.95	94.85	0.01	0.2665	0.2665