



GLAN AGUA

**MACROOM WASTE WATER TREATMENT PLANT
UPGRADE PROJECT**

PRIORITY SUBSTANCES ASSESSMENT



Document Control Sheet

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Table of Contents

1.	Introduction	1
2.	Desktop Study.....	2
2.1	Assessment of Analysis Required	2
2.2	Review outcome of Desktop Study.....	3
3.	Assessment of Significance and Recommendations.....	1

Appendices

Appendix A Screening of Parameters for Priority Substances

List of Tables

Table 2-1	List of Non-Domestic Discharges to WWTP.....	2
Table 2-2	List of Dangerous or Priority Substances in Non-Domestic Discharges to WWTP ..	3



1. INTRODUCTION

This report has been prepared for the Macroom WW Agglomeration, County Cork to inform a Waste Water Discharge Licence Review Application for D0126-01.

This Desk Top Study has been undertaken to determine the necessity, if any, for analysis of the Final Treated Effluent Discharge (SW001) from Macroom agglomeration, based on the Guidance on the Screening for Priority Substances for Waste Water Discharge Licences, issued by the EPA. Relevant inputs to the waste water works and estimates of emissions from the discharge point have been taken into account in the preparation of this report.

Relevant inputs to the waste water works, any relevant measurements / calculations / estimates of emissions from the discharge point and any relevant measurements undertaken at representative downstream monitoring locations have been taken into account in the preparation of this report.

Details of the emissions concentration for the primary discharge and impact on the receiving water are included in Appendix A.



2. DESKTOP STUDY

2.1 ASSESSMENT OF ANALYSIS REQUIRED

A. Review of all Industrial Inputs into the WwTP:

A list of all licensed and unlicensed industrial or trade effluent discharges, leachate discharges and other imports are included in Table 2-1 below.

Table 2-1 List of Non-Domestic Discharges to WWTP

Licensee Name / Landfill Name /Other Imports	Type of Industry	Type of Licence (IED / IPPC / Section 16 / Unlicensed)	Potential Source of Dangerous / Priority Substances (Yes / No)	Dangerous Priority Substances Monitoring Undertaken (Yes / No)
Macroom Community Hospital	Healthcare	Trade Effluent Licence	Yes	No
Cork Co- Operative Marts Limited	Agricultural	Trade Effluent Licence	Yes	No
Macroom Motor Services Ltd	Motor	Trade Effluent Licence	Yes	No
Amber Petroleum Ltd.	Motor	Trade Effluent FOG Licence	Yes	No
Skibbereen Residential Care Limited		Trade Effluent FOG Licence	No	No
O'Leary's Supervalu	Retail	Trade Effluent FOG Licence	No	No
J&R Hotels Limited	Tourism	Trade Effluent FOG Licence	No	No
Tony & Tios	Food	Trade Effluent FOG Licence	No	No
Martin Hurley's Fastfood	Food	Trade Effluent FOG Licence	No	No
Twomey Butchers Ltd	Food	Trade Effluent FOG Licence	No	No

Where the answer to "Potential Source of Dangerous Substances (Yes / No)" is Yes, Table 2-2 below has been completed for each industry/landfill/other import source.

Table 2-2 List of Dangerous or Priority Substances in Non-Domestic Discharges to WWTP

Licensee Name	List Anticipated Dangerous Substances or state if unknown	Monitoring Undertaken (Yes / No)
Macroom Community Hospital	Unknown	No
Cork Co-Operative Marts Limited	Unknown	No
Macroom Motor Services Ltd	Unknown	No
Amber Petroleum Ltd.	Unknown	No

B. Discharge Monitoring:

Any analysis data available for the relevant parameters is included in Appendix 1 with details of the sample data and/or source of the data.

C. Downstream Monitoring Location’s Participation in Relevant Monitoring Programme:

There is no priority substances monitoring data available for the downstream ambient monitoring location, in the Sullane River.

D. Participation in PRTR Reporting:

The emissions of specific organic compounds and metals (priority substances) have been measured for the discharge on 14/09/2021.

The emission concentration from the PRTR has been included in the table in Appendix A where analysis data is not available.

2.2 REVIEW OUTCOME OF DESKTOP STUDY

Following the desktop study, all parameters in Appendix A have been assessed to establish any potential impact on the receiving waters.



3. ASSESSMENT OF SIGNIFICANCE AND RECOMMENDATIONS

The assessment carried out above indicates that data is available for all parameters based on either analysis or the PRTR toolkit. The level of dilution is based on 95 percentile flows and the EQS is based on Annual Average concentration requirements. As such the results of the analysis undertaken are conservative.

No parameters have been identified as potentially being higher than the required EQS following dilution, therefore no impact on the receiving waters is anticipated.

Based on the assessment carried out it is not considered that any further sampling or analysis is required.

The EPA have prepared a report on priority substances - An Inventory of Emissions to Waters in Ireland. This document states that Ireland appears to have relatively few problems associated with the presence of Priority / Priority Hazardous substances in its surface waters. It identifies that wastewater discharges are a potential source of metals in receiving waters with lead being the main metal identified as associated with wastewater discharges. However, metals exceedances, in particular those for cadmium, lead, and nickel are primarily associated with areas of historic mining activity. Similarly PAH's have been identified in stormwater overflows but the most significant source is considered to be rainfall.

A consultation process with the EPA is proposed to be undertaken by Irish Water in 2016 to establish appropriate levels of monitoring for priority and dangerous substances, taking into account the particular requirements of the Water Framework Directive. This will allow a targeted monitoring programme to be undertaken in areas where priority substances have been identified or industrial discharges or imports provide a potential source, and where there is a shortfall of existing monitoring data.

Does the assessment use the Desk Top Study Method or Screening Analysis to determine if the discharge contains the parameters in Appendix 1 of the EPA guidance	Desk Top Study
Does the assessment include a review of licensed / authorised inputs to the works?	Yes
Does the assessment include a review of other (unauthorised) inputs to the works?	Yes
Does the report include an assessment of the significance of the results where a listed material is present in the discharge? (e.g. impact on the relevant EQS standard for the receiving water)	Yes
Does the assessment identify that priority substances may be impacting the receiving water?	No
Does the Improvement Programme for the agglomeration include the elimination / reduction	No

of all priority substances identified as having an impact on receiving water quality?	
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Appendix A SCREENING OF PARAMETERS FOR PRIORITY SUBSTANCES

AA: Annual Average

EQS: Environmental Quality Standard

Dilution Factor in receiving water: Based on the 95%ile River flow (0.861 m³/s), and the Macroon WwTP DWF (1137 m³/d), there are 65 dilutions estimated immediately in the proximity of the discharge point.

Ref	Compound	Group of Compounds	AA-EQS Inland SW (µg/l)	AA-EQS Other SW (µg/l)	Estimated Conc. (µg/l) ¹	Data Source	Sample Date (if applicable)	Effluent Concentration above AA concentration (Yes/No)	Effluent Concentration above AA concentration after dilution (Yes/No)
1	Benzene (PS)	SVOC	10	8	<1.0	Sample	14/09/2021	No	No
2	Carbon Tetrachloride (PS)	SVOC	12	12	<1.0	Sample	14/09/2021	No	No
3	1, 2-Dichloroethane	SVOC	10	10	<1.0	Sample	14/09/2021	No	No
4	Dichloromethane (PS)	SVOC	20	20	<1.0	Sample	14/09/2021	No	No
5	Tetrachloroethylene (PS) Tetrachloroethene	SVOC	10	10	<1.0	Sample	14/09/2021	No	No
6	Trichloroethylene (PS) 1,1,2-Trichloroethene	SVOC	10	10	<1.0	Sample	14/09/2021	No	No
7	Trichlorobenzenes (PS)	SVOC	0.4	0.4	<0.03	Sample	14/09/2021	No	No
8	Trichloromethane (Chloroform)	SVOC	2.5	2.5	<1.0	Sample	14/09/2021	No	No
9	Xylenes (all isomers)	SVOC	10	10	<2.0	Sample	14/09/2021	No	No

10	Ethyl Benzene	SVOC	10	10	<1.0	Sample	14/09/2021	No	No
11	Toluene	SVOC	10	10	<1.0	Sample	14/09/2021	No	No
12	Naphthalene (PS)	PAH	2.4	1.2	<0.1	Sample	14/09/2021	No	No
13	Fluoranthene (PS)	PAH	0.1	0.1	<0.1	Sample	14/09/2021	No	No
14	Benzo[k]fluoranthene (PHS)*	PAH	0.03	0.03	<0.1	Sample	14/09/2021	Yes	No
15	Benzo[ghi]perylene (PHS)*	PAH	0.002	0.002	<0.1	Sample	14/09/2021	Yes	No
16	Indeno[1,2,3-c,d]pyrene (PHS)	PAH	0.002	0.002	<0.1	Sample	14/09/2021	Yes	No
17	Benzo[b]fluoranthene (PHS)*	PAH	0.03	0.03	<0.1	Sample	14/09/2021	Yes	No
18	Benzo[a]pyrene (PHS)	PAH	0.05	0.05	<0.1	Sample	14/09/2021	Yes	No
19	Di(2-ethylhexyl)phthalate (DEHP)	Plasticiser	1.3	1.3					
20	Isodrin (PS)	Pesticides	0.01	0.005	<0.006	Sample	14/09/2021	No	No
21	Dieldrin (PS)	Pesticides	0.01	0.005	<0.001	Sample	14/09/2021	No	No
22	Diuron (PS)	Pesticides	0.2	0.2	<0.1	Sample	14/09/2021	No	No
23	Isoproturon (PS)	Pesticides	0.3	0.3	<0.1	Sample	14/09/2021	No	No
24	Atrazine (PS)	Pesticides	0.6	0.6	<0.02	Sample	14/09/2021	No	No

25	Simazine (PS)	Pesticides	1	1	<0.022	Sample	14/09/2021	No	No
26	Glyphosate	Pesticides	60		0.505	Sample	14/09/2021	No	No
27	Mecoprop (MCP)	Pesticides	0.02	0.02	<0.08	Sample	14/09/2021	Yes	No
28	2,4-D	Pesticides	N/A	N/A	<0.1	Sample	14/09/2021	N/A	N/A
29	MCPA	Pesticides	N/A	N/A	<0.1	Sample	14/09/2021	N/A	N/A
30	Linuron	Pesticides	0.7	0.7	<0.1	Sample	14/09/2021	No	No
31	Dichlobenil	Pesticides	N/A	N/A	<4.0	Sample	14/09/2021	N/A	N/A
32	2, 6-Dichlorobenzamide	Pesticides	N/A	N/A	<0.05	Sample	14/09/2021	N/A	N/A
33	PCB's	PCB's	0.1	0.1					
34	Phenols (as Total C)	Phenols	8	8					
35	Lead (PS)	Metals	7.2	7.2	0.32	Sample	14/09/2021	No	No
36	Arsenic	Metals	25	20	0.52	Sample	14/09/2021	No	No
37	Copper	Metals	5 or 100 ²	5	<1.8	Sample	14/09/2021	No	No
38	Zinc and compounds (as Zn)	Metals	8 or 50 or 100 ³	40	18	Sample	14/09/2021	Yes	No
39	Cadmium (PHS)	Metals	0.05	0.2	<0.02	Sample	14/09/2021	No	No
40	Mercury (PHS)	Metals	0.05	0.05	<0.01	Sample	14/09/2021	No	No

41	Chromium compounds (as Cr) and	Metals	3.4	0.6	<0.23	Sample	14/09/2021	No	No
42	Selenium	Metals	5.3	5.3	<1.2	Sample	14/09/2021	No	No
43	Antimony	Metals	0.4	0.4	<1.3	Sample	14/09/2021	Yes	No
44	Molybdenum	Metals	4.3	4.3	5.12	Sample	14/09/2021	Yes	No
45	Tin	Metals	0.2	0.2	<1.5	Sample	14/09/2021	Yes	No
46	Barium	Metals	1	1	34	Sample	14/09/2021	Yes	No
47	Boron	Metals	6.5	6.5	<56	Sample	14/09/2021	Yes	No
48	Cobalt	Metals	0.2	0.2	0.33	Sample	14/09/2021	Yes	No
49	Vanadium	Metals	0.9	0.9	0.29	Sample	14/09/2021	No	No
50	Nickel (PS)	Metals	20	20	1.5	Sample	14/09/2021	No	No
51	Fluoride	General	500	1500	<250	Sample	14/09/2021	No	No
52	Chloride	General	N/A	N/A	45	Sample	14/09/2021	N/A	N/A
53	TOC	General	N/A	N/A					
54	Cyanide	General	10	10	<5	Sample	14/09/2021	No	No
55	Conductivity	General	N/A	N/A	561	Sample	14/09/2021	N/A	N/A
56	Hardness	General	N/A	N/A	67.1	Sample	14/09/2021	N/A	N/A
57	pH	General	N/A	N/A	7.4	Sample	14/09/2021	N/A	N/A


Notes:

1. Where measured values are available these should be used instead of estimated values from PRTR tool.
2. In the case of Copper the value 5 applies where the water hardness measured in mg/l CaCO₃ is less than or equal to 100; the value 30 applies where the water hardness exceeds 100 mg/l CaCO₃. Estimated CaCO₃ value > 100 where no sampling data available (based on PRTR tool)
3. In the case of Zinc, the standard shall be 8 μ g/l for water hardness with annual average values less than or equal to 10 mg/l CaCO₃, 50 μ g/l for water hardness greater than 10 mg/l CaCO₃ and less than or equal to 100 mg/l CaCO₃ and 100 μ g/l elsewhere. Estimated CaCO₃ value > 100 where no sampling data available



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