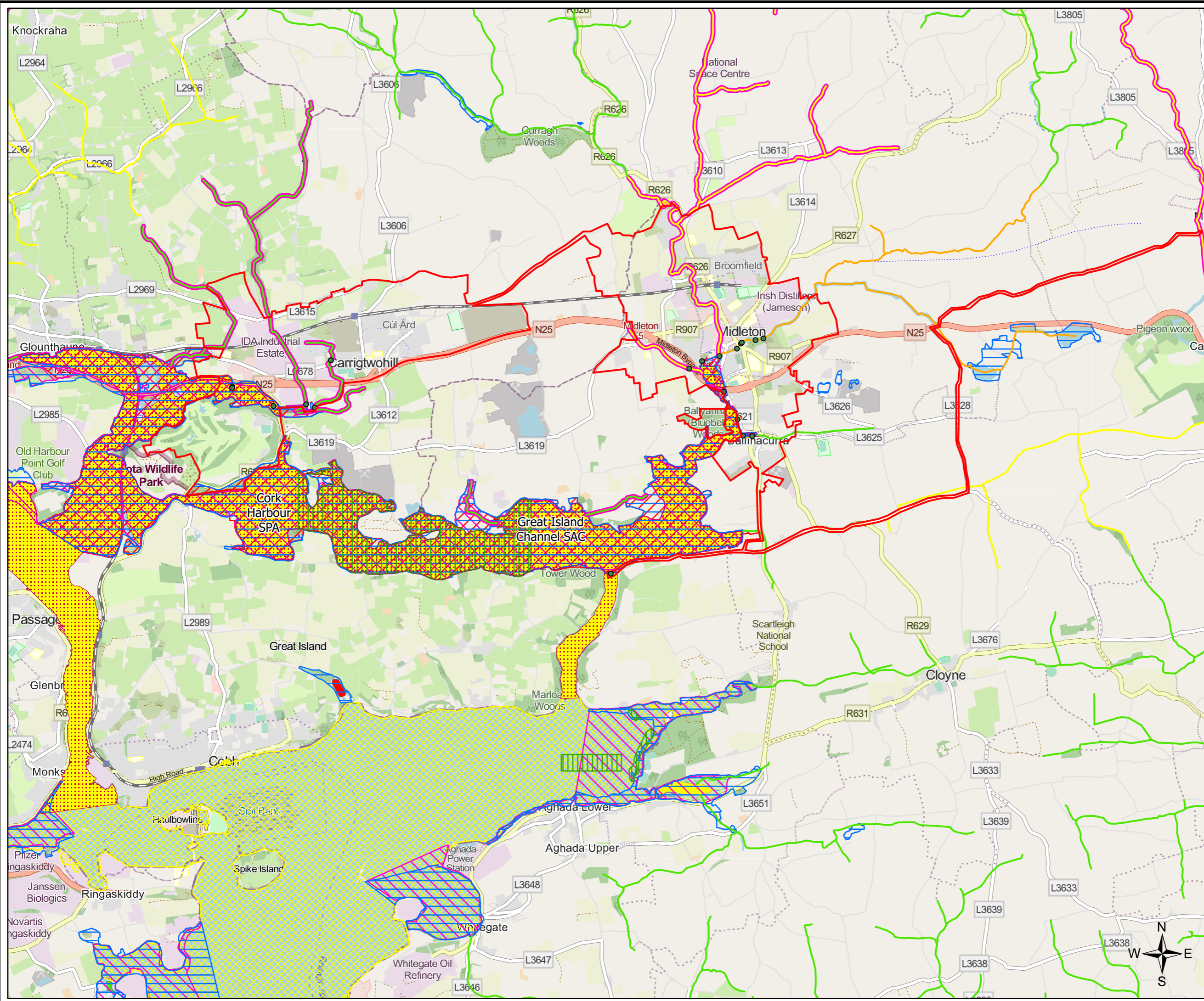




## **ATTACHMENT D.1:**

# **MAP 12 - RECEIVING WATER DESIGNATIONS**



NOTES:

**LEGEND**

- OPERATIONAL DISCHARGES
  - ▭ AGGLOMERATION BOUNDARY
  - ▨ SPA
  - ▧ SAC
  - ▭ PNHA
  - DRINKING WATER - RIVERS
  - ▨ NUTRIENT SENSITIVE AREAS - TRANSITIONAL WATERBODIES
  - ▨ SHELLFISH AREAS
- WFD RIVER WATERBODY STATUS (2016-2021)**
- GOOD
  - MODERATE
  - POOR
- WFD TRANSITIONAL WATERBODY STATUS (2016-2021)**
- BAD
  - GOOD
  - MODERATE
  - UNASSIGNED
- WFD COASTAL WATERBODY STATUS (2016-2021)**
- ▨ MODERATE

SIGNED: \_\_\_\_\_

PRINT NAME: \_\_\_\_\_

POSITION: \_\_\_\_\_

DATE: \_\_\_\_\_

**FOR UISCE ÉIREANN**

Rev	Date	Description	Drn	Chk	App

**LICENCE APPLICATION**

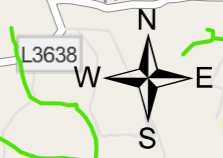
CLIENT: **UISCE ÉIREANN**  
 Colvill House,  
 24-26 Talbot Street,  
 Dublin 1  
 Tel. 1890 278 278 Web. www.water.ie

PROJECT: **MIDLETON  
 WASTE WATER DISCHARGE  
 LICENCE REVIEW APPLICATION**

TITLE: **MAP 12  
 RECEIVING WATER DESIGNATIONS**

SCALE: 1:57,500      DRAWN: R. Clarke  
 DATE: 14/06/2023

ATTACHMENT: **D.1**





## **ATTACHMENT D.2:**

# **ASSESSMENT OF IMPACT ON RECEIVING WATERS**



## **ATTACHMENT D.2.4:**

# **PRIORITY SUBSTANCE ASSESSMENT REPORT MAY 2023**

## Priority Substances Assessment

<b>Agglomeration Name:</b>	<b>Midleton</b>
<b>Licence Register No.</b>	<b>D0056-01 Licence Review</b>



## **Table of Contents**

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**Appendix 1 – Screening of Parameters for Priority Substances – Carrigwohill**

**Appendix 2 - Screening of Parameters for Priority Substances – Midleton**

## 1 Introduction

This report has been prepared for the Midleton and Carrigtwohill amalgamated agglomeration, in County Cork, to inform a Waste Water Discharge Licence (WWDL) Review Application for D0056-01.

This desk top study has been undertaken to determine the necessity, if any, for further analysis of the discharge based on the *Guidance on the Screening for Priority Substances for Waste Water Discharge Licences*, issued by the EPA.

Relevant inputs to the Midleton and Carrigtwohill WwTPs and estimates for the emissions from the relevant discharge points (*i.e.*, primary discharge from the Carrigtwohill WwTP and secondary discharge from the Midleton WwTP) have been taken into account in the preparation of this report.

## 2 Desktop Study

### 2.1 Assessment of Analysis Required

#### A. Review of all industrial inputs into WWTP

A review of available online mapping and EPA licensed facilities was undertaken to determine the non-domestic discharge types being received at the Midleton and Carrigtwohill WwTPs. In addition, all planning applications, since 2018, were reviewed to determine the associated non-domestic discharges being sent to the Midleton and Carrigtwohill WwTPs. The Uisce Éireann Technical Assessment Manual Sectoral Profile Data was reviewed to determine the potentially dangerous substances which could be released to sewer from industrial inputs.

As per the EPA, IPC and IE database, there is currently 4 Industrial Emission (IE) licences within the amalgamated agglomeration. These include:

- Dairygold Co-operative Society Ltd./TINE - IE licence Reg. No. P1103-01
- Irish Distillers Limited - IE licence Reg. No. P0442-02
- Merck Millipore Limited Reg No. P0571-04
- Fournier Laboratories Ireland Ltd Reg No. P1046-01

There are no. 22 Trade Effluent licences under Section 16 of the Water Pollution Act 1977 (amended 1990) within the amalgamated agglomeration are as follows for the Midleton and Carrigtwohill agglomerations:

Midleton Trade Effluent Licences:

- Circle K Ireland Energy Limited (UÉ-DTS-901951-01)
- Country Kitchens Cuisine Limited (WP(S)-13-07)
- Statoil Ireland Limited (WP(S)-15-03)
- Texaco (Ireland) Limited (WP(S)20-05)
- Midleton Park Hotel (WP(S)33-07)
- John Hurley Midleton Ltd (WP(S)-1\_06)
- Michael Keohane & Son Ltd (WP(S)-15-05)
- Cope Foundation (WP(S)-18-07)
- Raymonds Restaurant (WP(S)18-08)

- Midleton Community Hospital (WP(S)-19-05)
- Fire and Ice Café (WP(S)-24-07)
- Granary Foodstore (WP(S)-26-07)
- Thai Thanie Restaurant (WP(S)-28-07)
- Irish Distillers Limited (WP(S)-30-07)
- Tesco Ireland Limited (WP(S)-39-07)

Carrigtwohill Trade Effluent Licences:

- Stryker Ireland Limited (UÉ-DTS-685695-02)
- Gilead Sciences Ireland Uc (Gsiuc) (UÉ-DTS-710239-02)
- Stryker Ireland Limited (UÉ-DTS-753690-01)
- Ge Healthcare Ireland (UÉ-DTS-753715-02)
- Xui Lan Hotels Limited (UÉ-DTS-844820-01)
- Stryker Ireland Limited (TE-10087-01)
- Sifco Turbine Components Limited (WP(S)-12-98)

The licenced p.e. load from the Section 16 Licensed discharges is 18 p.e for Midleton WwTP, which accounts for approximately 0.1% if the total load input to the WwTP. The licenced p.e. load from the Section 16 Licensed discharges is 13,343 p.e. for Carrigtwohill WwTP, which accounts for approximately 44.9 % if the total load input to the WwTP. The combined licenced p.e. loads accounts for 27.7% of the total load input to the amalgamated Midleton and Carrigtwohill agglomeration.

It is considered that the Priority Substances which are possibly being emitted to sewer have been well represented in this partial characterisation of the wastewater (**Table 2.1**).

Upon review of the types of businesses, amenities and educational facilities within the agglomeration boundaries, **Table 2.1** provides an indicative list of non-domestic discharge types to the Midleton and Carrigtwohill WwTPs and details potential dangerous/priority substances.

**Table 2.1 – List of Non-Domestic Discharge Types to WwTPs and Details of Potential Dangerous/Priority Substance**

Type of Industry within the Agglomeration	Potential Source of Dangerous / Priority Substances (Yes / No)	Dangerous / Priority Substances Monitoring Undertaken (Yes / No)	List of Potential Dangerous Substances Based on Industry Type (Source: <i>Technical Assessment Manual - Sectoral Profile Data</i> )
Petroleum Products	Yes	Unknown	Benzene Fluoranthene Lead and its compounds Naphthalene Nickel and its compounds Octylphenols Anthracene Cadmium and its compounds C10-13-Chloralkanes Mercury and its compounds



Type of Industry within the Agglomeration	Potential Source of Dangerous / Priority Substances (Yes / No)	Dangerous / Priority Substances Monitoring Undertaken (Yes / No)	List of Potential Dangerous Substances Based on Industry Type (Source: <i>Technical Assessment Manual - Sectoral Profile Data</i> )
			Nonylphenols Polyaromatic Hydrocarbon (PAH)
Manufacture of machinery and equipment n.e.c.	Yes	Unknown	Dichloromethane Lead and its compounds Nickel and its compounds Chromium (III) Copper Toluene Xylenes (Total) Zinc
Garages and Filling Station	Yes	Unknown	Benzene Di (2-ethylhexyl) phthalate (DEHP) Lead and its compounds Naphthalene Nickel and its compounds Cadmium and its compounds Mercury and its compounds Chromium (III) Copper Toluene Xylenes (Total) Zinc
Dentist	Yes	Unknown	Octylphenols Mercury and its compounds
Hairdressers	Yes	Unknown	Nickel and its compounds Cadmium and its compounds
Launderettes and Dry Cleaners	Yes	Unknown	Di (2-ethylhexyl) phthalate (DEHP)
School	Yes	Unknown	Dichloromethane Lead and its compounds Nickel and its compounds Trichloromethane
Transport <i>via</i> railways	Yes	Unknown	Atrazine Diuron Simazine Polyaromatic Hydrocarbon (PAH)
Hospitals	Yes	Unknown	Dichloromethane
Manufacture of refined petroleum products	Yes	Unknown	Benzene Dichloromethane Lead and its compounds

Type of Industry within the Agglomeration	Potential Source of Dangerous / Priority Substances (Yes / No)	Dangerous / Priority Substances Monitoring Undertaken (Yes / No)	List of Potential Dangerous Substances Based on Industry Type (Source: <i>Technical Assessment Manual - Sectoral Profile Data</i> )
			Naphthalene Nickel and its compounds Tetrachloroethylene Trichloroethylene Cadmium and its compounds Mercury and its compounds  Nonylphenols Polyaromatic Hydrocarbon (PAH) Arsenic Chromium (III) Copper Cyanide Phenol Toluene Xylenes (Total) Zinc
Manufacture of food products and beverages	Yes	Unknown	Lead and its compounds Nickel and its compounds Cadmium and its compounds Mercury and its compounds Chromium (III) Copper Phenol Toluene Xylenes (Total) Zinc
Production, processing and preserving of meat and meat products	Yes	Unknown	Naphthalene Trichloroethylene Cadmium and its compounds Hexachlorocyclohexane (Lindane) Chromium (VI) Cypermethrin Toluene Xylenes (Total)
Manufacture of rubber and plastic products	Yes	Unknown	Benzene Dichloromethane Di (2-ethylhexyl) phthalate (DEHP) (benzo-a-pyrene)

Type of Industry within the Agglomeration	Potential Source of Dangerous / Priority Substances (Yes / No)	Dangerous / Priority Substances Monitoring Undertaken (Yes / No)	List of Potential Dangerous Substances Based on Industry Type (Source: <i>Technical Assessment Manual - Sectoral Profile Data</i> )
			Trichloromethane Trifluarin Anthracene Cadmium and its compounds Nonylphenols Polyaromatic Hydrocarbon (PAH) Copper Toluene Xylenes (Total) Zinc
Manufacture of fabricated metal products, except machinery and equipment	Yes	Unknown	Benzene Dichloromethane Lead and its compounds Nickel and its compounds Cadmium and its compounds Nonylphenols Arsenic Chromium (III) Copper Cyanide Toluene Xylenes (Total) Zinc
Manufacture of machinery and equipment n.e.c.	Yes	Unknown	Dichloromethane Lead and its compounds Nickel and its compounds Chromium (III) Copper Toluene Xylenes (Total) Zinc
Construction	Yes	Unknown	Lead and its compounds Nickel and its compounds Mercury and its compounds Arsenic Chromium (III) Copper Zinc
Sewage and refuse disposal, sanitation and similar activities	Yes	Unknown	Lead and its compounds Nickel and its compounds Dieldrin

Type of Industry within the Agglomeration	Potential Source of Dangerous / Priority Substances (Yes / No)	Dangerous / Priority Substances Monitoring Undertaken (Yes / No)	List of Potential Dangerous Substances Based on Industry Type (Source: <i>Technical Assessment Manual - Sectoral Profile Data</i> )
			Cadmium and its compounds Mercury and its compounds Arsenic Chromium (VI) Copper Cyanide Fluoride Zinc
Manufacture of textiles	Yes	Unknown	Benzene Chlorfenvinphos Chlorpyrifos Dichloromethane Di (2-ethylhexyl) phthalate (DEHP) Lead and its compounds Naphthalene Nickel and its compounds Pentachlorophenol Trichlorobenzene (all isomers) Trichloromethane Anthracene Pentabromodiphenlyether  Cadmium and its compounds C10-13-Chloralkanes Endosulfan Hexachlorobenzene Hexachlorocyclohexane (Lindane) Mercury and its compounds  Nonylphenols Arsenic Chromium (III) Chromium (VI) Copper Cyanide Fluoride Phenol Toluene Xylenes (Total) Zinc

Type of Industry within the Agglomeration	Potential Source of Dangerous / Priority Substances (Yes / No)	Dangerous / Priority Substances Monitoring Undertaken (Yes / No)	List of Potential Dangerous Substances Based on Industry Type (Source: <i>Technical Assessment Manual - Sectoral Profile Data</i> )
Galvanising	Yes	Unknown	Lead and its compounds Nickel and its compounds Cadmium and its compounds Mercury and its compounds Arsenic Chromium (III) Copper Zinc
Manufacture of glues and gelatines	Yes	Unknown	Dichloromethane Lead and its compounds Cadmium and its compounds Polyaromatic Hydrocarbon (PAH) Arsenic Chromium (VI) Zinc

### **B. Discharge monitoring**

Primary discharge monitoring at Midleton WwTP for the possible presence of Specific Pollutants, Priority and Priority Hazardous Substances as outlined in Table 10, 11 and 12 of European Communities Environmental Objectives (Surface Waters) Regulations 2009, as amended (now S.I No. 77 of 2019) was undertaken on the 3<sup>rd</sup> of July 2015 and on the 10<sup>th</sup> of December 2015.

Primary discharge monitoring at the Carrigtwohill WwTP for the possible presence of Specific Pollutants, Priority and Priority Hazardous Substances as outlined in Table 10, 11 and 12 of European Communities Environmental Objectives (Surface Waters) Regulations 2009, as amended, is not available.

Midleton and Carrigtwohill are included in the Dangerous Substances Programme for 2023. The primary discharge (SW009) and secondary discharge (SW001) will be monitored in line with the requirements of the programme. Midleton and Carrigtwohill were selected on the basis that a WWDL review is planned for 2023.

### **C. Downstream monitoring location's participation in relevant monitoring programme**

Priority substances monitoring data for the primary discharge downstream ambient monitoring location and the secondary discharge downstream ambient monitoring location is not available.

## **D. Participation in PRTR reporting**

Estimated data from the PRTR reporting tool was required for this desktop assessment for the majority of parameters as measured data was largely unavailable for parameters in **Appendix 1** for the Primary Discharge and in **Appendix 2** for Secondary Discharge.

### **2.2 Review Outcome of Desktop Study**

Following the desktop study, all parameters in Appendix 1 / Appendix 2 have been assessed to establish any potential impact on the receiving waters. Priority substance measured concentrations in the primary discharge / secondary discharge were not available for all parameters, as such estimated concentrations were assessed. This desktop study is considered to provide partial characterisation of the wastewater.

## **3 Assessment of Significance and Recommendations**

An assessment of the potential for impacts on receiving waters from priority substances in the **primary discharge (SW009)** from Carrigtwohill WwTP has been carried out. The assessment considers the primary discharge relevant to Environmental Quality Standards (EQS) for priority substances in surface waters, as set out in the European Communities Environmental Objectives (Surface Waters) Regulations 2009, as amended. Based on the estimated data from the UÉ UWW PRTR Electronic Toolset, no parameters, except one elevated estimated concentration for Benzo[a]pyrene, were identified as potentially being higher than the required EQS, after dilution. Carrigtwohill is included on the UÉ Dangerous Substance Programme for 2023, Benzo[a]pyrene is included on this sampling plan.

An assessment of the potential for impacts on receiving waters from priority substances in the **secondary discharge (SW001)** from the Midelton WwTP has been carried out. The assessment considers the secondary discharge relevant to EQS for priority substances in surface waters, as set out in the European Communities Environmental Objectives (Surface Waters) Regulations 2009, as amended. Based on the estimated data from the UÉ UWW PRTR Electronic Toolset, no parameters were identified as potentially being higher than the required EQS, after dilution. Midleton is also included on the UÉ Dangerous Substance Programme for 2023.

<b>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</b>	Desk Top Study
<b>Does the assessment include a review of licensed / authorised inputs to the works?</b>	Yes
<b>Does the assessment include a review of other (unauthorised) inputs to the works?</b>	Yes
<b>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)</b>	Yes

<b>Does the assessment identify that priority substances may be impacting the receiving water?</b>	Yes, Benzo[a]pyrene, was identified as being potentially higher than the required EQS, after dilution.
<b>Does the Improvement Programme for the agglomeration include the elimination / reduction of all priority substances identified as having an impact on receiving water quality?</b>	No

#### 4 Conclusion

An assessment of the potential for impacts on receiving waters from priority substances in the primary and secondary discharges has been carried out to inform this WWDL application. The assessment considered the primary and secondary discharges relevant to Environmental Quality Standards (EQS) for priority substances in surface waters, as set out in the Surface Waters Regulations.

Apart from one parameter (Benzo[a]pyrene), after dilution it can be concluded that none of the remaining substances listed in the Specific Pollutants, Priority and Priority Hazardous Substances, are likely to be present in the primary effluent discharge (SW009) to Lough Mahon (Harper’s Island), at concentrations above the standards in European Communities Environmental Objectives (Surface Waters) Regulations 2009, as amended. Carrigtwohill is included on the UÉ Dangerous Substance Programme for 2023.

After dilution it can be concluded that none of the substances listed in the Specific Pollutants, Priority and Priority Hazardous Substances, are likely to be present in the secondary effluent discharge (SW001) to the North Channel Great Island, at concentrations above the standards in European Communities Environmental Objectives (Surface Waters) Regulations 2009, as amended.

## Appendix 1 – Screening of Parameters for Priority Substances – Primary Discharge (SW009) from the Carrigtwohill WwTP

AA: Annual Average

MAC: Maximum Allowable Concentration

EQS: Environmental Quality Standards

Modelling undertaken in May 2023 as part of the D0056-01 Midleton Licence Review Application estimate the dilution factor at the point of discharge to be approximately 2.9 in summer and 5.6 in winter which provides generally good assimilative capacity conditions for the primary discharge.

No.	Compound	Group of compounds	AA-EQS Inland SW (µg/l)	AA-EQS Other SW (µg/l)	Estimated Conc. (µg/l) <sup>1</sup>	Data Source	Sample Date (if applicable)	Effluent Concentration above AA concentration (Yes/No)	Effluent Concentration above AA concentration after dilution (Yes/No)
1	Benzene	VOCs	10	8	0.01682	PRTR Electronic Toolset	N/A	No	No
2	Carbon tetrachloride	VOCs	12	12	0.00000	PRTR Electronic Toolset	N/A	No	No
3	1,2-Dichloroethane	VOCs	10	10	0.00000	PRTR Electronic Toolset	N/A	No	No
4	Dichloromethane	VOCs	20	20	0.04545	PRTR Electronic Toolset	N/A	No	No
5	Tetrachloroethylene	VOCs	10	10	0.05909	PRTR Electronic Toolset	N/A	No	No
6	Trichloroethylene	VOCs	10	10	0.00000	PRTR Electronic Toolset	N/A	No	No
7	Trichlorobenzenes	VOCs	0.4	0.4	0.00000	PRTR Electronic Toolset	N/A	No	No
8	Trichloromethane	VOCs	2.5	2.5	0.00000	PRTR Electronic Toolset	N/A	No	No
9	Xylenes (all isomers)	VOCs	10	10	0.11591	PRTR Electronic Toolset	N/A	No	No



No.	Compound	Group of compounds	AA-EQS Inland SW (µg/l)	AA-EQS Other SW (µg/l)	Estimated Conc. (µg/l) <sup>1</sup>	Data Source	Sample Date (if applicable)	Effluent Concentration above AA concentration (Yes/No)	Effluent Concentration above AA concentration after dilution (Yes/No)
10	Ethyl Benzene	VOCs	n/a	n/a	0.01659	PRTR Electronic Toolset	N/A	N/A	N/A
11	Toluene	VOCs	10	10	0.49325	PRTR Electronic Toolset	N/A	No	No
12	Naphthlene <sup>1</sup>	PAHs	2	2	0.00400	PRTR Electronic Toolset	N/A	No	No
13	Fluoranthene <sup>1</sup>	PAHs	0.0063	0.0063	0.00234	PRTR Electronic Toolset	N/A	No	No
14	Benzo[k]fluoranthene <sup>2</sup>	PAHs	MAC of 0.017	MAC of 0.017	0.00200	PRTR Electronic Toolset	N/A	No	No
15	Benzo[ghi]perylene <sup>2</sup>	PAHs	MAC of $8.2 \times 10^{-3}$	MAC of $8.2 \times 10^{-4}$	0.00200	PRTR Electronic Toolset	N/A	No	No
16	Indeno[1,2,3-c,d]pyrene <sup>2</sup>	PAHs			0.00220	PRTR Electronic Toolset	N/A	No	No
17	Benzo[b]fluoranthene <sup>2</sup>	PAHs	MAC of 0.017	MAC of 0.017	0.00200	PRTR Electronic Toolset	N/A	No	No
18	Benzo[a]pyrene	PAHs	$1.7 \times 10^{-4}$	$1.7 \times 10^{-4}$	0.00200	PRTR Electronic Toolset	N/A	Yes	<b>Yes</b>
19	Di(2-ethylhexyl)phthalate (DEHP)	Plasticiser	1.3	1.3	0.91727	PRTR Electronic Toolset	N/A	No	No
20	Isodrin <sup>3</sup>	Pesticides	$\Sigma=0.01$	$\Sigma=0.005$	0.00000	PRTR Electronic Toolset	N/A	No	No

<sup>1</sup> The EQS for these substances shall take effect from 22 December 2015

<sup>2</sup> No indicative parameter is provided for this group of substances

<sup>3</sup>  $\Sigma$  of Aldrin, Dieldrin, Endrin and Isodrin.

No.	Compound	Group of compounds	AA-EQS Inland SW (µg/l)	AA-EQS Other SW (µg/l)	Estimated Conc. (µg/l) <sup>1</sup>	Data Source	Sample Date (if applicable)	Effluent Concentration above AA concentration (Yes/No)	Effluent Concentration above AA concentration after dilution (Yes/No)
21	Dieldrin <sup>3</sup>	Pesticides			0.00000	PRTR Electronic Toolset	N/A	No	No
22	Diuron	Pesticides	0.2	0.2	0.02636	PRTR Electronic Toolset	N/A	No	No
23	Isoproturon	Pesticides	0.3	0.3	0.00750	PRTR Electronic Toolset	N/A	No	No
24	Atrazine	Pesticides	0.6	0.6	0.01045	PRTR Electronic Toolset	N/A	No	No
25	Simazine	Pesticides	1	1	0.01409	PRTR Electronic Toolset	N/A	No	No
26	Glyphosate	Pesticides	60	-	1.53273	PRTR Electronic Toolset	N/A	No	No
27	Mecoprop	Pesticides	n/a	n/a	0.10705	PRTR Electronic Toolset	N/A	N/A	N/A
28	2,4-D	Pesticides	n/a	n/a	0.05102	PRTR Electronic Toolset	N/A	N/A	N/A
29	MCPA	Pesticides	n/a	n/a	0.08864	PRTR Electronic Toolset	N/A	N/A	N/A
30	Linuron	Pesticides	0.7	0.7	0.00000	PRTR Electronic Toolset	N/A	No	No
31	Dichlobenil	Pesticides	n/a	n/a	0.00430	PRTR Electronic Toolset	N/A	N/A	N/A
32	2,6-Dichlorobenzamide	Pesticides	n/a	n/a	0.08045	PRTR Electronic Toolset	N/A	N/A	N/A
33	PCBs	PCBs	n/a	n/a	0.00000	PRTR Electronic Toolset	N/A	N/A	N/A

No.	Compound	Group of compounds	AA-EQS Inland SW (µg/l)	AA-EQS Other SW (µg/l)	Estimated Conc. (µg/l) <sup>1</sup>	Data Source	Sample Date (if applicable)	Effluent Concentration above AA concentration (Yes/No)	Effluent Concentration above AA concentration after dilution (Yes/No)
34	Phenols (as Total C)	Phenols	8	8	0.90978	PRTR Electronic Toolset	N/A	No	No
35	Lead	Metals	1.2	1.3	3.03939	PRTR Electronic Toolset	N/A	Yes	No
36	Arsenic	Metals	25	20	0.35000	PRTR Electronic Toolset	N/A	No	No
37	Copper	Metals	5 or 30 <sup>2</sup>	5	3.08333	PRTR Electronic Toolset	N/A	No	No
38	Zinc	Metals	8 or 50 or 100 <sup>3</sup>	40	49.36364	PRTR Electronic Toolset	N/A	Yes	No
39	Cadmium	Metals	0.08 or 0.09 or 0.15 or 0.25 <sup>4</sup>	0.2	0.05000	PRTR Electronic Toolset	N/A	No	No
40	Mercury	Metals	MAC of 0.07	MAC of 0.07	0.00000	PRTR Electronic Toolset	N/A	No	No
41	Chromium VI	Metals	3.4	0.6	0.29167	PRTR Electronic Toolset	N/A	No	No
42	Selenium	Metals	n/a	n/a	0.43750	PRTR Electronic Toolset	N/A	N/A	N/A
43	Antimony	Metals	n/a	n/a	0.15455	PRTR Electronic Toolset	N/A	N/A	N/A
44	Molybdenum	Metals	n/a	n/a	0.00000	PRTR Electronic Toolset	N/A	N/A	N/A
45	Tin	Metals	n/a	n/a	0.10833	PRTR Electronic Toolset	N/A	N/A	N/A

No.	Compound	Group of compounds	AA-EQS Inland SW (µg/l)	AA-EQS Other SW (µg/l)	Estimated Conc. (µg/l) <sup>1</sup>	Data Source	Sample Date (if applicable)	Effluent Concentration above AA concentration (Yes/No)	Effluent Concentration above AA concentration after dilution (Yes/No)
46	Barium	Metals	n/a	n/a	18.50833	PRTR Electronic Toolset	N/A	N/A	N/A
47	Boron	Metals	n/a	n/a	62.87500	PRTR Electronic Toolset	N/A	N/A	N/A
48	Cobalt	Metals	n/a	n/a	0.17576	PRTR Electronic Toolset	N/A	N/A	N/A
49	Vanadium	Metals	n/a	n/a	2.72727	PRTR Electronic Toolset	N/A	N/A	N/A
50	Nickel	Metals	4	8.6	4.25758	PRTR Electronic Toolset	N/A	No	No
51	Fluoride	General	500	1,500	241.87500	PRTR Electronic Toolset	N/A	No	No
52	Chloride	General	n/a	n/a	84855.45455	PRTR Electronic Toolset	N/A	N/A	N/A
53	TOC	General	n/a	n/a	9219.77273	PRTR Electronic Toolset	N/A	N/A	N/A
54	Cyanide	General	10	10	2.93182	PRTR Electronic Toolset	N/A	No	No
	Conductivity	General	n/a	n/a	0.00000	PRTR Electronic Toolset	N/A	N/A	N/A
	Hardness (mg/l CaCO <sub>3</sub> )	General	n/a	n/a	214909.0909 1	PRTR Electronic Toolset	N/A	N/A	N/A
	pH	General	n/a	n/a	-	PRTR Electronic Toolset	N/A	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 CaCO<sub>3</sub> is less than or equal to 100; the value 30 applies where the water hardness exceeds 100 mg/l CaCO<sub>3</sub>. Estimated CaCO<sub>3</sub> value > 100 where no sampling data available (based on PRTR tool)
3. In the case of Zinc, the standard shall be 8 µg/l for water hardness with annual average values less than or equal to 10 mg/l CaCO<sub>3</sub>, 50 µg/l for water hardness greater than 10 mg/l CaCO<sub>3</sub> and less than or equal to 100 mg/l CaCO<sub>3</sub> and 100 µg/l elsewhere. Estimated CaCO<sub>3</sub> value > 100 where no sampling data available
4. For Cadmium and its compounds the EQS values vary dependent upon the hardness of the water as specified in five class categories (Class 1: <40 mg CaCO<sub>3</sub>/l, Class 2: 40 to <50 mg CaCO<sub>3</sub>/l, Class 3: 50 to <100 mg CaCO<sub>3</sub>/l, Class 4: 100 to <200 mg CaCO<sub>3</sub>/l and Class 5: >200 mg CaCO<sub>3</sub>/l)

## Appendix 2 – Screening of Parameters for Priority Substances – Secondary Discharge (SW001) from the Midleton WwTP

AA: Annual Average

MAC: Maximum Allowable Concentration

EQS: Environmental Quality Standards

Modelling undertaken in May 2023 as part of the D0056-01 Midleton Licence Review Application estimate the dilution factor at the point of discharge to be approximately 46 in summer and 46.6 in winter which provides good assimilative capacity conditions for the primary discharge.

No.	Compound	Group of compounds	AA-EQS Inland SW (µg/l)	AA-EQS Other SW (µg/l)	Estimated Conc. (µg/l) <sup>1</sup>	Data Source	Sample Date (if applicable)	Effluent Concentration above AA concentration (Yes/No)	Effluent Concentration above AA concentration after dilution (Yes/No)
1	Benzene	VOCs	10	8	0.01682	PRTR Electronic Toolset	N/A	No	No
2	Carbon tetrachloride	VOCs	12	12	0.00000	PRTR Electronic Toolset	N/A	No	No
3	1,2-Dichloroethane	VOCs	10	10	0.00000	PRTR Electronic Toolset	N/A	No	No
4	Dichloromethane	VOCs	20	20	0.04545	PRTR Electronic Toolset	N/A	No	No
5	Tetrachloroethylene	VOCs	10	10	0.05909	PRTR Electronic Toolset	N/A	No	No
6	Trichloroethylene	VOCs	10	10	0.00000	PRTR Electronic Toolset	N/A	No	No

No.	Compound	Group of compounds	AA-EQS Inland SW (µg/l)	AA-EQS Other SW (µg/l)	Estimated Conc. (µg/l) <sup>1</sup>	Data Source	Sample Date (if applicable)	Effluent Concentration above AA concentration (Yes/No)	Effluent Concentration above AA concentration after dilution (Yes/No)
7	Trichlorobenzenes	VOCs	0.4	0.4	0.00000	PRTR Electronic Toolset	N/A	No	No
8	Trichloromethane	VOCs	2.5	2.5	0.00000	PRTR Electronic Toolset	N/A	No	No
9	Xylenes (all isomers)	VOCs	10	10	0.11591	PRTR Electronic Toolset	N/A	No	No
10	Ethyl Benzene	VOCs	n/a	n/a	0.01659	PRTR Electronic Toolset	N/A	N/A	N/A
11	Toluene	VOCs	10	10	0.49325	PRTR Electronic Toolset	N/A	No	No
12	Naphthlene4	PAHs	2	2	0.00400	PRTR Electronic Toolset	N/A	No	No
13	Fluoranthene1	PAHs	0.0063	0.0063	0.00234	PRTR Electronic Toolset	N/A	No	No
14	Benzo[k]fluoranthene5	PAHs	MAC of 0.017	MAC of 0.017	0.00200	PRTR Electronic Toolset	N/A	No	No

<sup>4</sup> The EQS for these substances shall take effect from 22 December 2015

<sup>5</sup> No indicative parameter is provided for this group of substances

No.	Compound	Group of compounds	AA-EQS Inland SW (µg/l)	AA-EQS Other SW (µg/l)	Estimated Conc. (µg/l) <sup>1</sup>	Data Source	Sample Date (if applicable)	Effluent Concentration above AA concentration (Yes/No)	Effluent Concentration above AA concentration after dilution (Yes/No)
15	Benzo[ghi]perylene <sup>2</sup>	PAHs	MAC of 8.2 x 10 <sup>-3</sup>	MAC of 8.2 x 10 <sup>-4</sup>	0.00200	PRTR Electronic Toolset	N/A	No	No
16	Indeno[1,2,3-c,d]pyrene <sup>2</sup>	PAHs			0.00220	PRTR Electronic Toolset	N/A	No	No
17	Benzo[b]fluoranthene <sup>2</sup>	PAHs	MAC of 0.017	MAC of 0.017	0.00200	PRTR Electronic Toolset	N/A	No	No
18	Benzo[a]pyrene	PAHs	1.7 x 10 <sup>-4</sup>	1.7 x 10 <sup>-4</sup>	0.00200	PRTR Electronic Toolset	N/A	Yes	No
19	Di(2-ethylhexyl)phthalate (DEHP)	Plasticiser	1.3	1.3	0.91727	PRTR Electronic Toolset	N/A	No	No
20	Isodrin <sup>6</sup>	Pesticides	Σ=0.01	Σ=0.005	0.00000	PRTR Electronic Toolset	N/A	No	No
21	Dieldrin <sup>3</sup>	Pesticides			0.00000	PRTR Electronic Toolset	N/A	No	No
22	Diuron	Pesticides	0.2	0.2	0.02636	PRTR Electronic Toolset	N/A	No	No

<sup>6</sup> Σ of Aldrin, Dieldrin, Endrin and Isodrin.



No.	Compound	Group of compounds	AA-EQS Inland SW (µg/l)	AA-EQS Other SW (µg/l)	Estimated Conc. (µg/l) <sup>1</sup>	Data Source	Sample Date (if applicable)	Effluent Concentration above AA concentration (Yes/No)	Effluent Concentration above AA concentration after dilution (Yes/No)
23	Isoproturon	Pesticides	0.3	0.3	0.00750	PRTR Electronic Toolset	N/A	No	No
24	Atrazine	Pesticides	0.6	0.6	0.01045	PRTR Electronic Toolset	N/A	No	No
25	Simazine	Pesticides	1	1	0.01409	PRTR Electronic Toolset	N/A	No	No
26	Glyphosate	Pesticides	60	-	1.53273	PRTR Electronic Toolset	N/A	No	No
27	Mecoprop	Pesticides	n/a	n/a	0.10705	PRTR Electronic Toolset	N/A	N/A	N/A
28	2,4-D	Pesticides	n/a	n/a	0.05102	PRTR Electronic Toolset	N/A	N/A	N/A
29	MCPA	Pesticides	n/a	n/a	0.08864	PRTR Electronic Toolset	N/A	N/A	N/A
30	Linuron	Pesticides	0.7	0.7	0.00000	PRTR Electronic Toolset	N/A	No	No
31	Dichlobenil	Pesticides	n/a	n/a	0.00430	PRTR Electronic Toolset	N/A	N/A	N/A

No.	Compound	Group of compounds	AA-EQS Inland SW (µg/l)	AA-EQS Other SW (µg/l)	Estimated Conc. (µg/l) <sup>1</sup>	Data Source	Sample Date (if applicable)	Effluent Concentration above AA concentration (Yes/No)	Effluent Concentration above AA concentration after dilution (Yes/No)
32	2,6-Dichlorobenzamide	Pesticides	n/a	n/a	0.08045	PRTR Electronic Toolset	N/A	N/A	N/A
33	PCBs	PCBs	n/a	n/a	<0.010	Sample	03/07/2015	N/A	N/A
34	Phenols (as Total C)	Phenols	8	8	0.90978	PRTR Electronic Toolset	N/A	No	No
35	Lead	Metals	1.2	1.3	2.2	Sample	10/12/2015	Yes	No
36	Arsenic	Metals	25	20	<1.0	Sample	10/12/2015	No	No
37	Copper	Metals	5 or 302	5	0.0041	Sample	10/12/2015	No	No
38	Zinc	Metals	8 or 50 or 1003	40	84	Sample	10/12/2015	Yes	No
39	Cadmium	Metals	0.08 or 0.09 or 0.15 or 0.254	0.2	<0.3	Sample	10/12/2015	Yes	No
40	Mercury	Metals	MAC of 0.07	MAC of 0.07	0.22	Sample	10/12/2015	No	No
41	Chromium VI	Metals	3.4	0.6	<3.0	Sample	10/12/2015	No	No
42	Selenium	Metals	n/a	n/a	0.43750	PRTR Electronic Toolset	N/A	N/A	N/A
43	Antimony	Metals	n/a	n/a	0.15455	PRTR Electronic Toolset	N/A	N/A	N/A

No.	Compound	Group of compounds	AA-EQS Inland SW (µg/l)	AA-EQS Other SW (µg/l)	Estimated Conc. (µg/l) <sup>1</sup>	Data Source	Sample Date (if applicable)	Effluent Concentration above AA concentration (Yes/No)	Effluent Concentration above AA concentration after dilution (Yes/No)
44	Molybdenum	Metals	n/a	n/a	0.00000	PRTR Electronic Toolset	N/A	N/A	N/A
45	Tin	Metals	n/a	n/a	<3.0	Sample	10/12/2015	N/A	N/A
46	Barium	Metals	n/a	n/a	18.50833	PRTR Electronic Toolset	N/A	N/A	N/A
47	Boron	Metals	n/a	n/a	62.8750	PRTR Electronic Toolset	N/A	N/A	N/A
48	Cobalt	Metals	n/a	n/a	0.17576	PRTR Electronic Toolset	N/A	N/A	N/A
49	Vanadium	Metals	n/a	n/a	2.72727	PRTR Electronic Toolset	N/A	N/A	N/A
50	Nickel	Metals	4	8.6	2.6	Sample	10/12/2015	Yes	No
51	Fluoride	General	500	1,500	241.875	PRTR Electronic Toolset	N/A	No	No
52	Chloride	General	n/a	n/a	84885.45	PRTR Electronic Toolset	N/A	N/A	N/A
53	TOC	General	n/a	n/a	9219.77273	PRTR Electronic Toolset	N/A	N/A	N/A

No.	Compound	Group of compounds	AA-EQS Inland SW (µg/l)	AA-EQS Other SW (µg/l)	Estimated Conc. (µg/l) <sup>1</sup>	Data Source	Sample Date (if applicable)	Effluent Concentration above AA concentration (Yes/No)	Effluent Concentration above AA concentration after dilution (Yes/No)
54	Cyanide	General	10	10	2.93182	PRTR Electronic Toolset	N/A	No	No
	Conductivity	General	n/a	n/a	0.00000	PRTR Electronic Toolset	N/A	N/A	N/A
	Hardness (mg/l CaCO <sub>3</sub> )	General	n/a	n/a	214909.1	PRTR Electronic Toolset	N/A	N/A	N/A
	pH	General	n/a	n/a	-	PRTR Electronic Toolset	N/A	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 CaCO<sub>3</sub> is less than or equal to 100; the value 30 applies where the water hardness exceeds 100 mg/l CaCO<sub>3</sub>. Estimated CaCO<sub>3</sub> value > 100 where no sampling data available (based on PRTR tool)
3. In the case of Zinc, the standard shall be 8 µg/l for water hardness with annual average values less than or equal to 10 mg/l CaCO<sub>3</sub>, 50 µg/l for water hardness greater than 10 mg/l CaCO<sub>3</sub> and less than or equal to 100 mg/l CaCO<sub>3</sub> and 100 µg/l elsewhere. Estimated CaCO<sub>3</sub> value > 100 where no sampling data available.
4. For Cadmium and its compounds, the EQS values vary dependent upon the hardness of the water as specified in five class categories (Class 1: <40 mg CaCO<sub>3</sub>/l, Class 2: 40 to <50 mg CaCO<sub>3</sub>/l, Class 3: 50 to <100 mg CaCO<sub>3</sub>/l, Class 4: 100 to <200 mg CaCO<sub>3</sub>/l and Class 5: >200 mg CaCO<sub>3</sub>/l)