

# Comhairle Contae Chorcaí Cork County Council

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Corcaigh, Éire.  
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Administration,  
Environmental Licencing programme,  
Office of Climate, Licencing & Resource Use,  
Environmental Protection Agency,  
Regional Inspectorate,  
Inniscarra,  
County Cork.

February 17<sup>th</sup> 2011

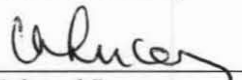
D0126-01

**Re: Notice in accordance with Regulation 18(3)(b) of the Waste Water Discharge (Authorisation) Regulations 2007**

Dear Mr Huskisson,

With reference to the notice received for the Macroom Waste Water Discharge Licence Application please find our response attached.

Yours Faithfully

  
Mairead Lucey  
Substitute Director of Services,  
Area Operations South,  
Floor 5,  
County Hall,  
Cork



Ms Patricia Power  
Director of Services  
Cork County Council  
Area Operations South  
Floor 5, County Hall  
Carrigrohane Rd  
Cork

Regional Inspectorate, Inniscarra  
County Cork, Ireland  
Cigireacht Réigiúnach, Inis Cara  
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21 August 2009

D0126-01

re: Notice in accordance with Regulation 18(3)(b) of the Waste Water Discharge (Authorisation) Regulations 2007

Dear Ms Power,

I am to refer to the above referenced application for a waste water discharge licence relating to agglomeration named Macroom. Having examined the documentation submitted, I am to advise that the Agency is of the view that the documentation does not comply with Regulation 16 of the Waste Water Discharge (Authorisation) Regulations 2007.

You are therefore requested, in accordance with Regulation 18(3)(b) of the regulations, to take the steps to supply the information detailed below:

## REGULATION 16 COMPLIANCE REQUIREMENTS

### Waste Water Works

- c) Provide a technical description of the design criteria and construction detail of the primary discharge outfall.

In addition provide the following information:

- (i) An estimate of the existing and the maximum proposed Population Equivalent (p.e) contribution from (1) domestic, (2) commercial and (3) trade effluent sources.
- (ii) Clarification whether leachate and/or industrial sludges are treated in the wastewater treatment plant (WWTP). If so provide details of (1) the transfer and storage arrangements, (2) the location in the WWTP where the leachate/industrial sludge residues are introduced and (3) the quantity (volume and p.e), frequency and rate of the addition to the WWTP.
- (iii) Summary details of all industrial discharges permitted under an IPPC, Waste or single media licence, for treatment in the WWTP and any other wastewaters or wastes accepted at the WWTP for treatment.



### Existing Environment

- (f) Provide a further description of the existing environment in terms of water quality with particular reference to environmental quality standards or other legislative standards. The response should include:
  - (i) A copy of the most recent water quality management and/or catchment plan in place for the receiving water body. Provide an evaluation of the discharge in relation to the objectives of the water quality management plan and catchment plan, as applicable.
  - (ii) The number of dilutions available in the receiving water body.

### Laboratory Monitoring and Analysis

- (g) Provide additional information in relation to monitoring, sampling and analysis. The response should include:
  - (i) Clarify the laboratory and the method used for analysis of mercury and its compounds.
  - (ii) With regard to the requirements of the UWWT Directive/Regulations, clarify the proposed frequency of monitoring of the final discharge.
  - (iii) Clarify if the composite sampling of the primary discharge is time or flow proportional.
  - (iv) Clarify the sampling arrangements for the influent waste water to the WWTP and provide details of the proposal and timescale for the provision of composite sampling and continuous flow monitoring, as applicable.
  - (v) Provide details of the proposal and timescale for continuous flow monitoring on the discharges from the waste water works, as applicable.

### Operational Information

- (I) Reassess the details submitted in the application to ensure that it fully describes the existing or proposed measures, including emergency procedures, to prevent unintended waste water discharges and to minimise the impact on the environment of any such discharges. The response should include:
  - (i) Information on all of the storm water overflows that may also act as emergency overflow points. Describe the events that may lead to an emergency overflow at each location.
  - (ii) An assessment of the identified storm water overflows having regard to the requirements of the DoEHLG guidance.
  - (iii) Clarification as to whether the emergency overflow from any pumping stations has been known to activate in the last 12 months. If so, identify each pumping station and provide the reason for the activation and details of the frequency, duration and discharge volume (or estimate), where applicable.
  - (iv) Clarification if there is a standby or mobile generator available for use at any of the pumping stations in the event of power outage.
  - (v) Provide a copy of the preliminary assessment report into the options available for the upgrading of the current treatment plant and sewerage network, where available.
  - (vi) Clarify the treatment regime proposed to ensure compliance with the ortho-phosphate emission level specified in Table F.1 (c) of the application and clarify if a ferric sulphate dosing system for phosphorus removal is proposed to be reinstated during the WWTP upgrade.

- (vii) Submit details of all discharges from the Macroom agglomeration via the following web based link: [http://78.137.160.73/epa\\_wwd\\_licensing/](http://78.137.160.73/epa_wwd_licensing/)

#### **Assessment of Impacts of Waste Water Discharges on Receiving Waters**

- (k) Reassess the effects of any existing or proposed discharge on the environment, including any environmental medium other than that into which the discharge take place or are to take place, and of proposed measures to prevent or eliminate, or where that is not practicable, to limit or abate any pollution caused by such discharges. The response should include:
- (i) An assessment of the resultant concentration in the Sullane River, based on the waste water treatment plant discharging at the maximum average discharge concentration. Comparison of results with the values included in the European Communities Environmental Objectives (Surface Waters) Regulations, 2009. S.I. No. 272/2009.
  - (ii) An ecological assessment of the predicted impact of the discharges from the agglomeration on sensitive species (such as Margaritifera Margaritifera - Freshwater Pearl Mussel) that may be present in the receiving water downstream of the discharges.

#### **Abstraction Points**

- (j) Provide a summary of the intake monitoring results for the abstraction at the Inniscarra Water Treatment Plant and assess compliance with the relevant drinking water category (S.I. 294/1989 - Quality of Surface Water Intended for the Abstraction of Drinking Water Regulations). Reassess any potential risks to the water quality at the downstream abstraction point due to discharges from the waste water works.

#### **Further Works**

- (m) Provide further details of any work necessary to meet relevant effluent discharge standards and a timeframe and schedule for such works. The response should include:
- (i) Clarification of the scope of the proposed works to be carried out in the Macroom agglomeration under the 2007 - 2009 Water Services Investment Programme funding (total €5,150,000) and provide the proposed start date and completion date of the various works to be carried out, as applicable.
  - (ii) Details of the programme of improvements to ensure that discharges other than the primary and secondary discharges comply with the DoEHLG guidance on Storm Water Overflows. Include the proposed timeframe for compliance with the DoEHLG guidance.

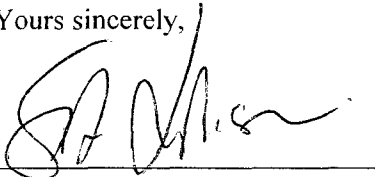
Your reply to this notice should include a revised non-technical summary which reflects the information you supply in compliance with the notice, insofar as that information impinges on the non-technical summary.

In the case where any drawings already submitted are subject to revision consequent on this request, a revised drawing should be prepared in each case. It is not sufficient to annotate the original drawing with a textual correction. Where such revised drawings are submitted, provide a list of drawing titles, drawing numbers and revision status, which correlates the revised drawings with the superseded versions.

Please supply the information in the form of a one original plus one copy within **six** weeks of the date of this notice, i.e. by **5th October 2009**. In addition please submit one copy of the requested information in electronic searchable PDF format on a CD-ROM (no file to exceed 10MB) to the Agency. Please note that all maps/drawings should not exceed A3 in size.

Please note that the application's register number is **D0126-01**. Please direct all correspondence in relation to this matter to *Administration, Environmental Licensing Programme, Office of Climate, Licensing & Resource Use, Environmental Protection Agency, Headquarters, PO Box 3000, Johnstown Castle Estate, County Wexford* quoting the register number.

Yours sincerely,



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**Stuart Huskisson**

**Inspector**

**Office of Climate, Licensing & Resource Use**

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# Upper Lee WMU



Kerry

## Legend

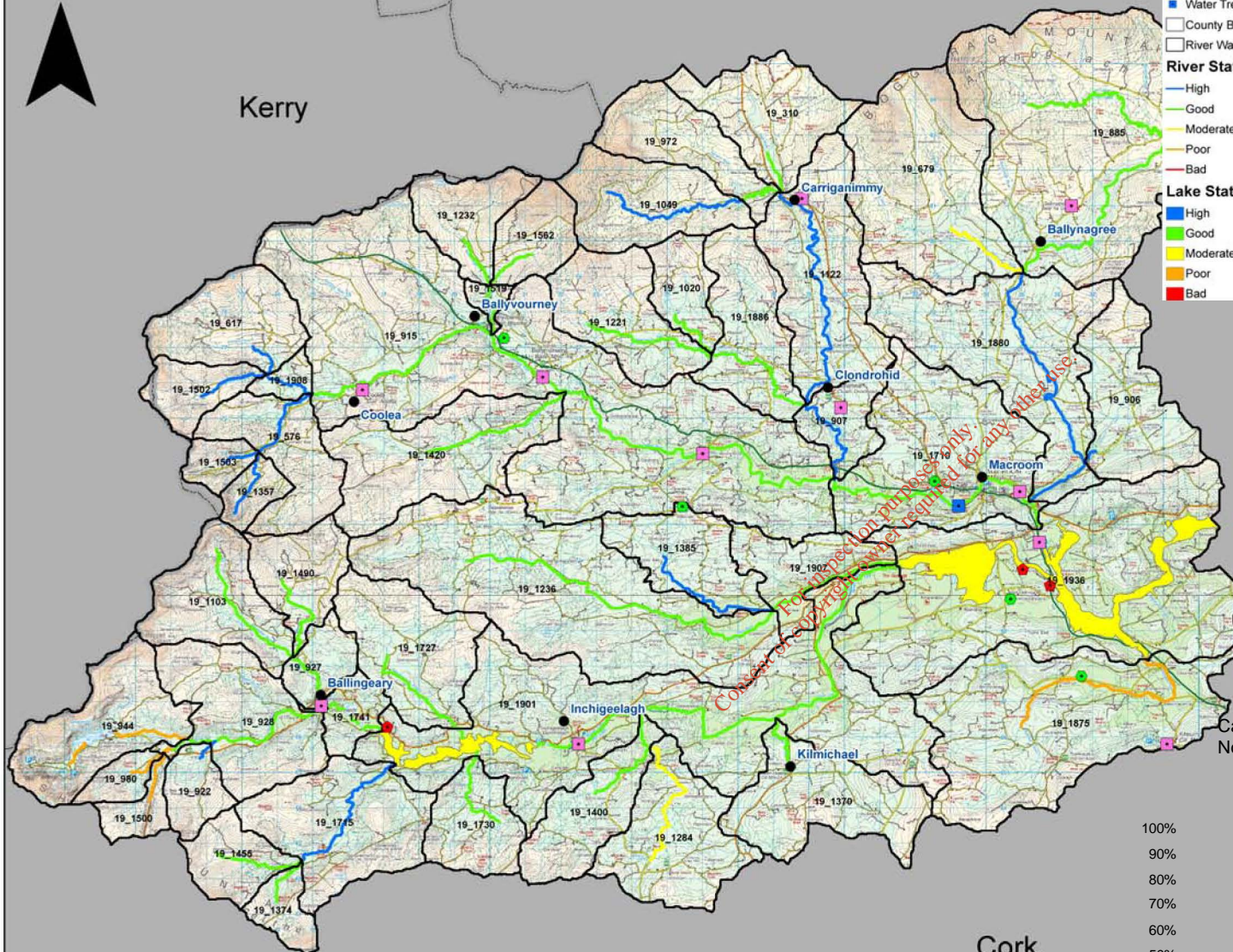
- Towns and Villages
- EPA Licensed Facility (IPPC)
- Local Authority Licensed Discharge
- Wastewater Treatment Plants
- Water Treatment Plants
- County Boundary
- River Water Body Boundary

## River Status

- High
- Good
- Moderate
- Poor
- Bad

## Lake Status

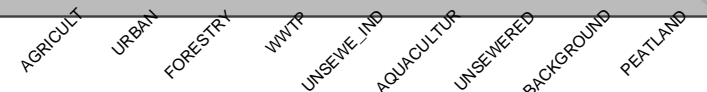
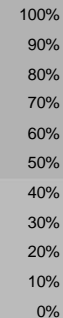
- High
- Good
- Moderate
- Poor
- Bad



Name	Upper Lee Water management Unit
Area	617km <sup>2</sup>
River Basin District	SWRBD
Main Counties	Cork
Protected Areas	4 Surface Drinking Water Rivers - Sullane, Lee, Unnamed stream at Toorenduff and Unnamed stream at Gorteenadrolane (both tribs of Lee) 3 SAC's: ST. GOBNET'S WOOD; THE GEARAGH, MULLAGHANISH BOG. 1 SPA: The Gearagh SPA

Calculated in accordance with OSPAR HARP Guidelines.  
Not an indication of risk, rather an indication of potential to cause risk.

## Sectoral Total Phosphorus Sources



Cork

# Upper Lee Water Management Unit Action Plan

STATUS/IMPACTS	
Overall status	There are 47 water bodies in this WMU. They are mostly High Status (14) with 27 Good Status, 2 Moderate status and 4 Poor status.
Status elements	Fish and hydromorphology dictates status of the poor waterbodies. Physchem is good or high, where monitored. High and Good water bodies are generally dictated by Q scores.
Possible Impacts - EPA Water Quality	<p>LEE (CORK): SW_19_944; SW_19_928; SW_19_1901            2002 - EPA noted the protected pearl mussel has apparently become scarce in the river in the past two decades.            2005 - there was major disruption to fauna at first location, upstream of Gouganebarra Lake (0010), where salmonid parr and other age classes had been killed. The pH of the water was 10.66 on the day, outside the limit of tolerance for these fish, which resulted from concreting work on a small bridge upstream of the sampling site.            2008 - the site was assigned Q score 4-5 (high) - RECOVERY            SW_19_944 Status of WB 2009: Moderate Status dictated by hydromorph            SW_19_1901 Status of WB 2009: Good Status dictated by Q status            SW_19_928 Status of WB 2009: Good Status dictated by Q status</p> <p>CUMMER SW_19_1875            2002 - The top and middle section of the river was polluted after having being high status in previous years.            2005 and 2008 - the water quality started to improve. The bottom section has remained at a good/high quality since records began.            In 2002 and 2005 pollution was detected at the top section (site 0800). However the latest EPA data, collected in 2008, assigned site 0800 a Q score 4 (good).            Status of WB 2009: Poor Status dictated by fishery status</p> <p>TOON: SW_19_1236; SW_19_1907            2002 - EPA found Toon river to be satisfactory throughout, for the first time since sampling began in 1990, when examined after flooding in September 2002. The pearl mussel still lives in part of the upper reaches. The lower reach, including the final location (0800) is hydromorphologically different than upstream following channelisation in the past            2005 - continuing satisfactory.            SW_19_1236 Status of WB 2009: Good Status dictated by Q status            SW_19_1907 Status of WB 2009: Good Status dictated by Q status</p> <p>LANEY: SW_19_885; SW_19_1800            2008 - Continuing satisfactory with high ecological quality at three of the site (0200, 0400, 0500) and good status a one site (0100). The top two sites surveyed (0100 and 0200) were assigned Q score 4 (good) whilst the bottom two sites were assigned Q score 4-5 (high). The protected pearl mussel lives in some stretches of the river.            SW_19_885 Status of WB 2009: Good Status dictated by Q status            SW_19_1800 Status of WB 2009: High Status dictated by Q status</p>

STATUS/IMPACTS	
Possible Impacts - EPA Water Quality (CONTINUED)	<p>SULLANE – SW_19_915; SW_19_1710            2002 - EPA noted the protected pearl mussel inhabits parts of the river.            2005 - EPA found the Sullane to be continuing satisfactory. A polluted stream enters the river, from right-hand side, downstream of Ballyjourney (0170).            2008 - All sites were assigned good status, except site 0300 which was classified Q score 4-5 (high).            SW_19_915 Status of WB 2009: Good Status dictated by Q status, good fishery status and physchem status****            SW_19_1710 Status of WB 2009: Good Status dictated by Q score</p> <p>FOHERISH:SW_19_1049 ; SW_19_972;SW_19_1122; SW_19_907            All sites continue to be assigned Q score 4-5 (high).            SW_19_1049 Status of WB: High Status dictated by Q status            SW_19_972 Status of WB: High Status dictated by Q status            SW_19_1122 Status of WB: High Status dictated by Q status            SW_19_907 Status of WB: High Status dictated by Q status</p> <p>AWBOY - SW_19_679            Since records began the site has been assigned either good status or above.            Status of WB 2009: Good Status dictated by Q score</p> <p>KEEL SW_19_310            Continuing satisfactory with good quality again recorded at the only location sampled on this tributary of the Foherish.            Status of WB 2009: Good Status dictated by Q status</p> <p>DOUGLAS (SULLANE) - SW_19_1420            The Douglas (Sullane) has consistently attained good/high status. The lower site (0200) continuously has been assigned Q score 4, whilst the upper site (0700) has continuously been assigned Q score 4-5.            Status of WB 2009: Good Status dictated by Q status</p> <p>GARRANE (LEE) SW_19_972            Since records began this site has been assigned Q score of 4 or 4-5 (good or high).            Status of WB: High Status dictated by Q status</p> <p>CUSLOURA – SW_19_679            Consistently assigned Q score 4 (good) except in 2005 when it was assigned moderate status. This was due to the river becoming overgrown with emergent vegetation in July 2005. In 2008 EPA recorded a reverse in the quality and it was assigned Q score 4 again.            Status of WB 2009: Good Status dictated by Q status</p>

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# Upper Lee Water Management Unit Action Plan

PRESSURES/RISKS	
Nutrient sources	Most TP is diffuse (92%) of which 72% comes from agriculture, 9% from forestry and 7% from unsewered properties. 8% of TP comes from Urban and WWTP.
Point pressures	11 WWTP: - Ballinagree, Ballingeary, Ballymakera, Carranimmy, Clondrohid, Coolcower, Coolea, Inchigeela, Kilmurry, Kilnamartyra, Macroom U.D.C); 1 WTP (Macroom Pws); 4 Section 4 2 contaminated sites (Palfab Limited, Adhmaid Cill Na Martra Teoranta). 4 IPPC
Wastewater Treatment Plants (WWTP) and Industrial Discharges	Ballingeary - Insufficient existing capacity, evidence of impact, not a protected area Ballingeary - Insufficient existing assimilative capacity (BOD), evidence of impact, not a protected area Ballymakera WWTP - Insufficient existing capacity, evidence of impact, not a protected area Ballymakera WWTP - Insufficient existing assimilative capacity (BOD), evidence of impact, not a protected area Kilmurry - Insufficient future (2015) assimilative capacity (BOD), discharge not to a protected area Macroom U.D.C. WWTP - Insufficient existing capacity, non-compliant effluent standard Macroom U.D.C. WWTP - Insufficient existing capacity of treatment plant, no evidence of impact, not a protected area Macroom U.D.C. WWTP - Insufficient future (2015) assimilative capacity (BOD), discharge not to a protected area Inchigeela - Insufficient existing capacity, evidence of impact, not a protected area Inchigeela - Insufficient existing assimilative capacity (BOD), evidence of impact, not a protected area
Quarries, Mines & Landfills	3 quarries and 1 landfill. None at risk.
Agriculture	1 WB at risk - SW_19_1875 -Cummer and Buingea Rivers
On-site systems	There are 4499 septic tanks in this WMU. 1518 of these are located in areas of very high or extreme risk.
Forestry	10 WB at risk from acidification - SW_19_1400, SW_19_617, SW_19_1357, SW_19_1503, SW_19_576, SW_19_1374, SW_19_1049, SW_19_1500, SW_19_1730, SW_19_1727.
Dangerous substances	None at Risk
Morphology	1 WB at risk - SW_19_1936 - Water Regulation and Impoundments - Carrigdrohid Reservoir, which is designated as HMWB
Abstractions	None at risk
Other	

## **Future Pressures and Developments**

*Throughout the river basin management cycle future pressures and developments will need to be managed to ensure compliance with the objectives of the Water Framework Directive and the Programme of Measures will need to be developed to ensure issues associated with these new pressures are addressed.*



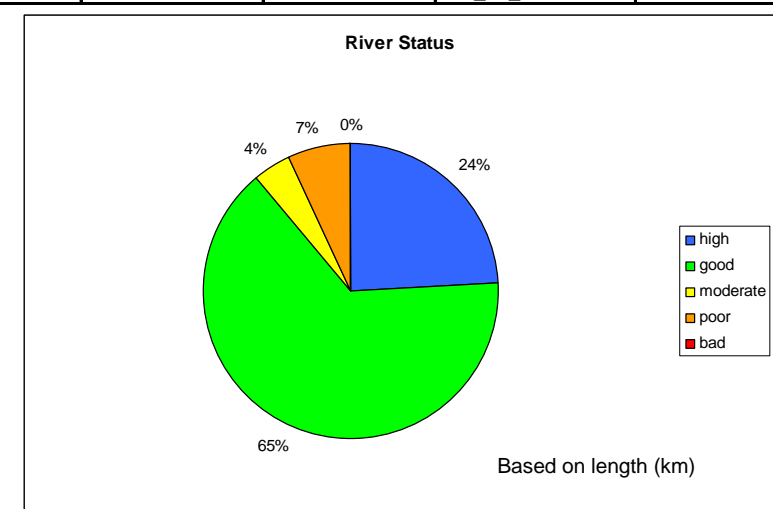
# Upper Lee Water Management Unit Action Plan

SELECTED ACTION PROGRAMME	
NB All relevant basic measures and general supplementary measures/surveys apply	
Point Sources	Refer to point source table below for WWTP action programme  Section 4s & IPPCs- Review Discharge Licenses
Diffuse Sources	AGRICULTURE - Good Agricultural Practice Regulations and Enforcement  FORESTRY - Measures to address acidification apply to the 10 water bodies at risk in the WMU. These are generally located to the west and south west of the WMU.  Septic Tanks: At Risk septic tanks are to be prioritised for inspections. Subsequent upgrade or connection to municipal systems depends on inspection and economic tests.
Other	Protection of drinking water, abstraction control and future licensing. MORPHOLOGY – Impassable barriers investigation.

Discharge		Measures						Waterbody		
Point Source Discharge	County	Plants Requiring Capital Works	Agglomerations Requiring Further Investigation Prior to Capital Works	Plants Required to Commence Implementation of Pollution Reduction Programmes for Shellfish Waters	Plants Requiring the Implementation of an Appropriate Performance Management System	Plants Requiring the Investigation of CSO's	Plants Required to Ensure Capacity of Treatment Plant is not Exceeded	Extended Timescale for Measure Implementation	Waterbody Code	Extended Deadline to Achieve Waterbody Objective
Ballingeary	Cork South	Yes						Yes	SW_19_927	No
Ballymakera WWTP	Cork South	Yes						Yes	SW_19_915	No
Inchigeela	Cork West	Yes						Yes	SW_19_1901	No
Kilmurry	Cork South						Yes	No	SW_19_1875	No
Macroom U.D.C. WWTP	Cork South	Yes					Yes	Yes	SW_19_1710	No

OBJECTIVES	
Good status 2015	Protect 41 waterbodies. Restore 3 waterbodies – by 2015
Alternative Objectives	Restore 1 waterbody by 2021 (SW_19_1875) – extended deadline for nitrogen losses to surface waters via groundwaters. Restore 1 waterbody by 2021 (SW_19_980) to allow recovery from poor/bad status Restore 1 waterbody (SW_19_1500) by 2027 for forestry.

**Transitional Status** – Refer to separate transitional waters action programme  
**Groundwater Status** – Refer to separate groundwater action programme



# Upper Lee Water Management Unit Action Plan - Rivers

IE_SW_UpperLee																		
Member State Code	Monitored Y (Extrapolated N)	Donor Waterbody	Biological Elements				Supporting Elements				Protected Areas					Objective	Date objective to be achieved	
			Macroinvertebrates (Q)	Freshwater Pearl Mussel	Fish	Phytobenthos (Diatoms)	Morphology	Specific Pollutants	Physio-chemical	Ecological Status	Chemical Status	Special Area of Conservation	Special Protection Area	Nutrient Sensitive Waters	Drinking Water			
SW_19_1020	N	SW_19_1221									G			Y			GES	2009
SW_19_1049	Y		H								H			Y			HES	2009
SW_19_1103	N	SW_19_1420									G						GES	2009
SW_19_1122	Y		H								H			Y			HES	2009
SW_19_1221	Y		G								G			Y			GES	2009
SW_19_1232	N	SW_19_915									G		Y	Y			GES	2009
SW_19_1236	Y		G					G			G						GES	2009
SW_19_1284	N	SW_20_250									M						GES	2015
SW_19_1357	N	SW_21_4731									H						HES	2009
SW_19_1370	N	SW_19_1710									G						GES	2009
SW_19_1374	N	SW_19_928									G						GES	2009
SW_19_1385	N	SW_19_907									H						HES	2009
SW_19_1400	N	SW_19_1236									G						GES	2009
SW_19_1420	Y		G								G						GES	2009
SW_19_1455	N	SW_19_928									G						GES	2009
SW_19_1490	N	SW_19_1420									G						GES	2009
SW_19_1500	N	SW_19_944									P						GES	2027
SW_19_1502	N	SW_21_4731									H						HES	2009
SW_19_1503	N	SW_21_4731									H						HES	2009
SW_19_1519	N	SW_19_915									G		Y				GES	2009
SW_19_1562	N	SW_19_915									G		Y	Y			GES	2009
SW_19_1710	Y		G					H		H	G				Y		GES	2009
SW_19_1715	N	SW_21_7068									H						HES	2009
SW_19_1727	N	SW_19_1420									G						GES	2009
SW_19_1730	N	SW_20_1491									G						GES	2009
SW_19_1741	N	SW_19_1420									G						GES	2009
SW_19_1875	Y		G							H	P						GES	2021

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# Upper Lee Water Management Unit Action Plan - Rivers

IE_SW_UpperLee																		
Member State Code	Monitored Y (Extrapolated N)	Donor Waterbody	Biological Elements				Supporting Elements				Protected Areas					Objective	Date objective to be achieved	
			Macros (Q)	Freshwater Mussel	Fish	Phytobenthos (Diatoms)	Morphology	Specific Pollutants	Physio-chemical	Ecological Status	Chemical Status	Special Area of Conservation	Special Protection Area	Nutrient Sensitive Waters	Drinking Water			
SW_19_1880	Y		H								H			Y			HES	2009
SW_19_1886	Y		G								G			Y			GES	2009
SW_19_1901	Y		G							H	G		Y	Y			GES	2009
SW_19_1907	Y		G								G		Y	Y			GES	2009
SW_19_1908	N	SW_21_4731									H						HES	2009
SW_19_1936	Y										G	G	Y	Y			GES	2009
SW_19_310	Y		G								G			Y			GES	2009
SW_19_576	N	SW_21_4731									H						HES	2009
SW_19_617	N	SW_21_4731									H						HES	2009
SW_19_679	Y		M								M			Y			GES	2015
SW_19_885	Y		G								G			Y			GES	2009
SW_19_906	N	SW_19_1880									H						HES	2009
SW_19_907	Y		H								H						HES	2009
SW_19_915	Y		G		G						G	G	Y	Y			GES	2009
SW_19_922	N	SW_21_7068									H						HES	2009
SW_19_927	N	SW_19_1420									G						GES	2009
SW_19_928	Y		G								H	G					GES	2009
SW_19_944	Y		P					G			P						GES	2015
SW_19_972	Y		G								G		Y				GES	2009
SW_19_980	N	SW_19_944									P						GES	2021

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# Upper Lee Water Management Unit Action Plan - Lakes

IE_SW_UpperLee																	
Member State Code	Name	Monitored Y (Extrapolated N)	Biological Elements			Supporting Elements			Ecological Status	Chemical Status	Special Area of Conservation	Protected Areas				Objective	Date objective to be achieved
			Macrophytes	Chlorophyll	Fish	Morphology	Nutrient Enrichment	Physico Chemical				Special Protection Area	Nutrient Sensitive Waters	Bathing Water	Drinking Water		
SW_19_139	Carrigdrohid Reservoir	Y	M	G			G	G	M		Y	Y				GEP	2015
SW_19_4	Allua ( Lough )	Y	M	M	M		G	G	M							GES	2015

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## MacroTreated Effluent Discharge 2010

Sample Date	21/01/2010	04/02/2010	04/03/2010	08/04/2010	05/05/2010	03/06/2010	08/07/2010	12/08/2010	09/09/2010	04/11/2010	24/11/2010	14/12/2010	MEAN VALUE	UWW Reg Limits
Sample	Effluent	Effluent	Effluent	Effluent	Effluent	Effluent	Effluent	Effluent	Effluent	Effluent	Effluent	effluent		not applicable
Sample Code	GU016	GU068	GU152	GU208	GU307	GU380	GU495	GU584	GU671	GU846	GU904	GU958		not applicable
Flow M <sup>3</sup> /Day	*	*	*	*	*	*	*	*	*	*	*	*		not applicable
pH	*	*	*	*	*	*	*	*	*	*	*	*		not applicable
Temperature °C	*	*	*	*	*	*	*	*	*	*	*	*		not applicable
Conductivity uS/cm 20°C	*	*	*	*	*	*	*	*	*	*	*	*		not applicable
Suspended Solids mg/L	<2.5	24	11	27	14	8	19	50	9	34	9	17	20.18181818	35
Ammonia-N mg/L	*	*	*	*	*	*	*	*	*	*	*	*		not applicable
BOD mg/L	1	19	6	27	13	5	6	18	4.5	8	5.1	16	10.72	25
COD mg/L	<21	100	45	91	<21	44	40	97	39	68	41	78	64	125
TN-N mg/L	*	*	*	*	*	*	*	*	*	*	*	*		not applicable

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# MACROOM REGULATION 18 FURTHER INFORMATION RESPONSE

## Waste Water Works

(c) Provide a technical description of the design criteria and construction detail of the primary discharge outfall.

The primary discharge outfall is by a 600mm diameter pipe from the outlet chamber at 63.431m invert level to the outfall at 62.683m invert level. No detail drawings exist for the primary discharge outfall.

In addition provide the following information:

(i) An estimate of the existing and maximum proposed Population Equivalent (p.e.) contribution from (1) domestic, (2) commercial and (3) trade effluent sources.

J. B. Barry & Partners Limited has prepared a preliminary report on the Macroom Sewerage Scheme WWTP Upgrade. Section 2.6 of this report estimates the current (2008) loading on the WWTP and these figures are summarised below.

The Estimated Current Domestic Load is 3364PE or 757m<sup>3</sup>/day (DWF)  
The Estimated Current Non-Domestic Load is 1691PE or 345m<sup>3</sup>/day (DWF)  
The Estimated Total Load is 5055PE or 1102m<sup>3</sup>/day (DWF)

However, section 3.2 of the preliminary report estimates the future loading on the WWTP for the years 2018 and 2028. Given that the period of the licence will be 6 years and that the licence will be in place until at least 2016, the 2018 agreed load figures have been selected as closest to the maximum that will be experienced.

The Maximum Proposed Domestic Load is 5339PE or 1201m<sup>3</sup>/day (DWF)  
The Maximum Proposed Non-Domestic Load is 1987PE or 447m<sup>3</sup>/day (DWF)  
The Maximum Proposed Total Load is 7326PE or 1648m<sup>3</sup>/day (DWF)

The Non-Domestic Load has to be split into Commercial and Trade Effluent contributions. Water metering data is available for all non-domestic users. This data was analysed and a Commercial:Trade Effluent ratio was established; based on the principle of water in equals water out. This Ratio was used to split the Maximum Proposed Non-Domestic Load into Commercial and Trade Effluent contributions.

(ii) Clarification whether leachate and or industrial sludges are treated in the wastewater treatment plant (WWTP). If so provide details of (1) the transfer and storage arrangements, (2) the location in the WWTP where the leachate/industrial sludge residues are introduced and (3) the quantity (volume and p.e.) frequency and rate of the addition to the WWTP.

Leachate or industrial sludges are not treated in the WWTP.

(iii) Summary details of all industrial discharges permitted under an IPPC, Waste or single media licence, for treatment in the WWTP and any other wastewaters or wastes accepted at the WWTP for treatment.

## IPPC Licence

Ship Company Ltd      Licence No: P0255-01\*

\*This no longer operational and is no longer discharging into the public sewer. Cork County Council believes that the EPA is negotiating the surrender of this licence.

**Waste or Single Media Licence**

J&R Hotels Limited	Licence No: WP(S)14/06
Jessie Lee	Licence No: WP(S)32/07
Macroom Mart	Licence No: WP(W)02/78
Macroom Motor Services Ltd	Licence No: WP(S)04/03
Martin Hurley	Licence No: WP(S)37/07
O'Leary's Supervalu (Macroom)	Licence No: WP(S)01/08
Twomey Butchers Ltd	Licence No: WP(S)38/07

***Existing Environment***

(f) Provide a further description of the existing environment in terms of water quality with particular reference to environmental quality standards or other legislative standards. The response should include:

River Basin Water Management Unit Plan for the Upper Lee catchment is included which highlights the point pressures on the rivers and the overall water quality of the rivers in the catchment.

Water quality data at station 19S020400 on the River Sullane at Linnamilla Bridge upstream of Macroom is presented in the following table. This station is located upstream of the primary discharge point.

<b>Year</b>	2008	2005	2002	1999
<b>Q-Value</b>	4-5	5	5	5

Water quality data at station 19S020480 on the River Sullane immediately before its confluence with the River Laney is presented in the following table. This station is located downstream of the primary discharge point.

<b>Year</b>	2008	2005	2002	1999
<b>Q-Value</b>	4	4	4	4

Furthermore in the attached River Sullane Biological Assessment carried out by JB Barry and Partners Ltd for the Macroom Sewerage Scheme WWTP Upgrade Preliminary Report assigns a Q-Value of 3-4 to 3 Number sample sites located upstream and downstream of the primary discharge point. The samples upon which these results are based were taken on the 18<sup>th</sup> of September 2008. The relatively poor results may be explained by the wet summer and flood events experienced during 2008.

A Q-Values of 4-5 and 4 means that the river is unpolluted. A Q-Value of 3-4 means that the river is slightly polluted.

The River Sullane into which the WWTP discharges has a “good status” and has been classified as being “Not at Risk” or strongly expected to achieve good status by 2015 under the Water Framework Directive Article 5 Characterisation (2004). Therefore the “good” standard contained in the Surface Water Regulations (2009) was used for comparison purposes.

The upstream and downstream sampling results for 2008 at aSW01u and aSW01d were compared to the relevant EQR/S from the surface water regulations in the following tables. The

sample results and the EQR/S were included only if there were values for both, to allow comparison.

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## UPSTREAM COMPARISON TABLE

<b>Physico-chemical conditions</b>	<b>Ecological ratio/standard quality</b>	<b>2008 upstream ambient sampling results at aSW01u</b>
	<b>Good boundary</b>	
	<b>Rivers (All Types)</b>	
<b>Oxygenation conditions Table 9</b>	<b>River water body</b>	<b>Ambient sampling results</b>
Biochemical Oxygen Demand (BOD) (mgO <sub>2</sub> /l)	Good status ≤1.5 (mean) or ≤2.6(95%ile)	1.0mg/L (mean) 2.0mg/L (95%ile)
<b>Acidification Status Table 9</b>	<b>River Water Body</b>	<b>Ambient sampling results</b>
pH (individual values)	Soft Water 4.5<pH<9.0 Hard Water 6.0<pH<9.0	7.2-7.6
<b>Nutrient conditions Table 9</b>	<b>River Water body</b>	<b>Ambient sampling results</b>
Total Ammonia (mg N/l)	Good status ≤0.065(mean) or ≤0.140(95%ile)	0.05mg/L (mean) 0.05mg/L (95%ile)
Molybdate Reactive Phosphorus (MRP) (mg P/l)	Good status ≤0.035(mean) or ≤0.075(95%ile)	0.025mg/L (mean) 0.025mg/L (95%ile)
<b>Specific pollutants Table 10</b>	<b>Inland surface waters AA-EQS</b>	<b>Ambient sampling results</b>
Phenol	8	<0.1µg/L
Toulene	10	<1.0µg/L
Xylene	10	<1.0µg/L
Arsenic	25	<0.96µg/L
Total Chromium	8.1	<20µg/L
Copper (depending on water hardness)	5	<20µg/L
Cyanide	10	7
Flouride	500	60
Zinc (depending on water hardness)	50	<20µg/L
<b>Priority Substances Table 11</b>	<b>Inland surface waters AA-EQS</b>	<b>Ambient sampling results</b>
Atrazine	0.6	<0.01µg/L
Dichloromethane	20	<1.0µg/L
Simazine	1	<0.01µg/L
Lead and its compounds	7.2	<20µg/L
Nickel and its compounds	20	<20µg/L
<b>Priority Hazardous Substances Table 12</b>	<b>Inland surface waters AA-EQS</b>	<b>Ambient sampling results</b>
Cadmium and its compounds (depending on water hardness)	0.25	<20µg/L
Mercury and its compounds	0.05	0.4µg/L

### Note the following:

The blue results are within the EQR/S.  
 The red results break the EQR/S.  
 The black results may break the EQR/S.  
 The results highlighted grey are at the limit of detection.  
 Water hardness in the Sullane River is 36mgCaCO<sub>3</sub>/L

## DOWNSTREAM COMPARISON TABLE

<b>Physico-chemical conditions</b>	<b>Ecological ratio/standard quality</b>	<b>2008 upstream ambient sampling results at aSW01d</b>
	<b>Good boundary</b>	
	<b>Rivers (All Types)</b>	
<b>Oxygenation conditions Table 9</b>	<b>River water body</b>	<b>Ambient sampling results</b>
Biochemical Oxygen Demand (BOD) (mgO <sub>2</sub> /l)	Good status ≤1.5 (mean) or ≤2.6(95%ile)	0.5mg/L (mean) 0.5mg/L (95%ile)
<b>Acidification Status Table 9</b>	<b>River Water Body</b>	<b>Ambient sampling results</b>
pH (individual values)	Soft Water 4.5<pH<9.0 Hard Water 6.0<pH<9.0	7.2-7.8
<b>Nutrient conditions Table 9</b>	<b>River Water body</b>	<b>Ambient sampling results</b>
Total Ammonia (mg N/l)	Good status ≤0.065(mean) or ≤0.140(95%ile)	0.05mg/L (mean) 0.05mg/L (95%ile)
Molybdate Reactive Phosphorus (MRP) (mg P/l)	Good status ≤0.035(mean) or ≤0.075(95%ile)	0.025mg/L (mean) 0.025mg/L (95%ile)
<b>Specific pollutants Table 10</b>	<b>Inland surface waters AA-EQS</b>	<b>Ambient sampling results</b>
Phenol	8	21.29
Toulene	10	<1.0µg/L
Xylene	10	<1.0µg/L
Arsenic	25	<0.96µg/L
Total Chromium	8.1	13.71
Copper (depending on water hardness)	5	<20µg/L
Cyanide	10	7
Flouride	500	40
Zinc (depending on water hardness)	50	<20µg/L
<b>Priority Substances Table 11</b>	<b>Inland surface waters AA-EQS</b>	<b>Ambient sampling results</b>
Atrazine	0.6	<0.01µg/L
Dichloromethane	20	<1.0µg/L
Simazine	1	<0.01µg/L
Lead and its compounds	7.2	0.012
Nickel and its compounds	20	<20µg/L
<b>Priority Hazardous Substances Table 12</b>	<b>Inland surface waters AA-EQS</b>	<b>Ambient sampling results</b>
Cadmium and its compounds (depending on water hardness)	0.25	<20µg/L
Mercury and its compounds	0.05	0.5µg/L

### Note the following:

The blue results are within the EQR/S.  
 The red results break the EQR/S.  
 The black results may break the EQR/S.  
 The results highlighted grey are at the limit of detection.  
 Water hardness in the Sullane River is 36mgCaCO<sub>3</sub>/L

- (i) A copy of the most recent water quality management and/or catchment plan in place for the receiving water body. Provide an evaluation of the discharge in relation to the objective of the water quality management plan and catchment plan, as applicable.

A copy of the water quality management plan has been included.

- (ii) The number of dilutions available in the receiving water body.

DWF in River =  $0.15\text{m}^3/\text{sec}$   
95%ile Flow in River =  $0.34\text{m}^3/\text{sec}$   
Median Flow in River =  $4.955\text{m}^3/\text{sec}$   
DWF from the WWTP is  $0.019\text{m}^3/\text{sec}$   
Max flow from WWTP =  $0.057\text{m}^3/\text{sec}$  (Estimated at 3 x DWF)

### Worst Case Scenario

No. of Dilutions =  $\frac{\text{DWF in River}}{\text{Max flow from WWTP}}$

No. of Dilutions =  $\frac{0.15}{0.057}$

No. of Dilutions = 2.6

This is a nearly impossible scenario as a Max flow from the WWTP would be the result of a storm event so it would be highly unlikely that there would simultaneously be a DWF in the River. It has been included for comparison purposes.

### Normal Scenario

No. of Dilutions =  $\frac{\text{Median Flow in River}}{\text{DWF from WWTP}}$

No. of Dilutions =  $\frac{4.955}{0.019}$

No. of Dilutions = 261

### **Laboratory Monitoring and Analysis**

- (g) Provide addition information in relation to monitoring, sampling and analysis. The response should include:

- (i) Clarify the laboratory and the method used for the analysis of mercury and its compounds.

The laboratory used for the analysis of Mercury was an accredited contract lab which has UKAS accreditation and the scope is attached to this report

After examining the results submitted there are some issues that require clarification in respect of these samples. The analytical method used for hydride metals was ICP-MS with a detection limit of  $0.2\mu\text{g/l}$  for Hg but checking the results for this batch of samples the mercury results recorded are not representative of the normal expected results for the river and discharges. There are no known sources of Mercury in the river network and in the treatment plant for the village. The effluent is domestic in nature with a limited number of food service establishments in the locality. The nearest major discharge upstream of the village and treatment plant is a Kilnamartra WWTP

the effluent from which is also domestic in nature. It would not be expected or normal to have elevated levels of mercury or in fact to have mercury present at all in the discharge or the river network. The river catchment is primarily agricultural in nature and there is no source of mercury emissions from this catchment.

From a scientific perspective when the results are examined as a group it appears that either there was a contamination issue in the laboratory concerned during the ICP-MS run for these samples or that there was an interference for Mercury analysis present in the network.

Cork County Council contacted the testing laboratory for confirmation and checking of the test and results. All tests and results met the quality standard under UKAS accreditation and are regarded as valid results. The mercury was detected at low levels upstream, downstream and in the final effluent. It was not detected in the influent therefore it is assumed that the network is not the source of the Mercury. Cork County Council are of the opinion that a natural interference is present in the water matrix for this network, which lead to this result.

- (ii) *With regard to the requirements of the UWWT Directive/Regulations, clarify the proposed frequency of monitoring of the final discharge.*

Please find enclosed the 2010 UWW monitoring results.

The Urban Wastewater Treatment Regulations 2001, stipulates a frequency of 4 samples per year for this category of plant (between 2000PE to 10,000 PE). This is provided that the previous years' results are compliant with the directive in that no absolute failures have occurred and that the number of exceedances which are not absolute exceedances are within the permitted number of failures. Cork County Council has and continues to comply with this required frequency of testing.

- (iii) *Clarify if the composite sampling of the primary discharge is time or flow proportional.*

The composite sampler is time proportional.

- (iv) *Clarify the sampling arrangements for the influent waste water to the WWTP and provide details of the proposal and timescale for the provision of composite sampling and continuous flow monitoring, as applicable.*

The influent waste water was sampled during 2007 – 2008 and the results are presented in the revised Attachment E4. (As part of the Waste Water Discharge Licence Application).

No ongoing sampling is currently being carried out on the influent to the WWTP. The need for influent monitoring is recognised in the Macroom Sewerage Scheme WWTP Upgrade Preliminary Report and is included in the requirements for the Upgrade. However there are no specific proposals in place and the Scheme has been omitted from the WSIP-2010-2012. This effectively means that the scheme is not approved to proceed and that funding will not be provided. Therefore no timescale for completion is available.

### **Operational Information**

- (i) *Reassess the details submitted in the application to ensure that it fully describes the existing or proposed measures, including emergency procedures, to prevent unintended waste water discharges and to minimise the impact on the environment of any such discharges. The response should include:*
- (i) *Information on all of the storm water overflows that may also act as emergency overflow points. Describe the events that may lead to an emergency overflow at each location.*



### **SW02MACR Massytown Pumping Station Emergency Overflow**

A power failure or heavy rainfalls are the events that may lead to an emergency overflow at this location.

- (ii) *An assessment of the identified storm water overflows having regard to the requirements of the DoEHLG guidance.*

### **SW01MACR Storm Water Outfall at Macroom WWTP**

This existing storm water overflow does not comply with the requirements of the DoEHLG guidance. This SWO has been in existence since 1975 and predates the guidance document. Incoming storm flows overflow via a two sided weir channel (located at the inlet to the WWTP) into the River Sullane. The overflow chamber is located upstream of the screening unit and there is currently no storage provided for the storm water prior to discharge into the Sullane River.

### **SW02MACR Massytown Pumping Station Storm Water Overflow**

There are no records of overflows from this pumpstation so no proper analysis can be carried out.

- (iii) *Clarification as to whether the emergency overflow from any pumping station has been known to activate in the last 12 months. If so, identify each pumping station and provide the reason for the activation and details of the frequency, duration, and discharge volume (or estimate), where applicable.*

*There have been emergency overflows in the last 12 months associated with power failure.*

- (iv) *Provide a copy of the preliminary assessment report into the options available for the upgrading of the current treatment plant and sewerage network, where available.*

The Preliminary Report on the Macroom Sewerage Scheme WWTP Upgrade prepared by J. B. Barry and partners has been included.

- (v) *Clarify the treatment regime proposed to ensure compliance with the orthophosphate emission level specified in Table F.1 (c) of the application and clarify if a ferric sulphate dosing system for phosphorus removal is proposed to be reinstated during the WWTP upgrade.*

A phosphorus removal facility comprised of a ferric sulphate storage and dosing system was installed in the late 1980's. However, this system has not been operated for a number of years and is now redundant. The preliminary report on the Macroom Sewerage Scheme WWTP Upgrade includes a proposal to refurbish and re-commission the existing P-dosing system. However this Scheme has been omitted from the WSIP 2010-2012. This effectively means that the scheme is not approved to proceed and that funding will not be provided. There are no other current proposals for phosphorus removal.

- (vi) *Submit details of all discharges from the Macroom agglomeration via the following web based link: [http://78.137.160.73/epa\\_licensing/](http://78.137.160.73/epa_licensing/)*

This data has been submitted online.

### **Assessment of Impact of Waste Water Discharges on Receiving Waters**

- (k) *Reassess the effects of any existing or proposed discharge on the environment, including any environmental medium other than that into which the discharge take place or are to take*

place, and of proposed measures to prevent or eliminate, or where that is not practicable to limit or abate any pollution caused by such discharges. The response should include:

- (i) An assessment of the resultant concentration in the Sullane River based on the wastewater treatment plant discharging at maximum average discharge concentration. Comparison of results with the values included in the European Communities Environmental Objective (Surface Waters) Regulations, 2009. S.I. No. 272/2009.

## **PREDICTED IMPACTS**

### **MASS BALANCE EQUATIONS FOR BOD:**

#### **Worst Case Scenario:**

Maximum Discharge, Low Flow in the River, Maximum BOD in Discharge.

Flow of River (95%ile) =  $0.34\text{m}^3/\text{sec}$   
Mean BOD in River (upstream) =  $1.0\text{mg/L}$   
Max volume of discharge =  $0.057\text{m}^3/\text{sec}$   
Max value for BOD in discharge =  $25\text{mg/L}$

$$C_{\text{final}} = \frac{(0.34 \times 1.0) + (0.057 \times 25)}{(0.34 + 0.057)}$$

$$C_{\text{final}} = 4.45\text{mg/l BOD}$$

This is in breach of the  $2.6\text{mg/L}$  95%ile EQS for BOD

#### **Normal Scenario:**

Normal Discharge, Median Flow in the River, Mean BOD in Discharge.

Flow of River (Median) =  $4.955\text{m}^3/\text{sec}$   
Mean BOD in River (upstream) =  $1.0\text{mg/L}$   
Normal volume of discharge =  $0.019\text{m}^3/\text{sec}$   
Mean value for BOD in discharge =  $15.79\text{mg/L}$

$$C_{\text{final}} = \frac{(4.955 \times 1.0) + (0.019 \times 15.79)}{(4.955 + 0.019)}$$

$$C_{\text{final}} = 1.06\text{mg/l BOD}$$

This meets the  $1.5\text{mg/L}$  mean EQS for BOD

### **MASS BALANCE EQUATIONS FOR AMMONIA:**

#### **Worst Case Scenario:**

Maximum Discharge, Low Flow in the River, Maximum Ammonia in Discharge.

Flow of River (95%ile) =  $0.34\text{m}^3/\text{sec}$   
Mean Ammonia in River (upstream) =  $0.05\text{mg/L}$   
Max volume of discharge =  $0.057\text{m}^3/\text{sec}$   
Max value for Ammonia in discharge =  $25\text{mg/L}$

$$C_{\text{final}} = \frac{(0.34 \times 0.05) + (0.057 \times 25)}{(0.34 + 0.057)}$$

$$(0.34 + 0.057)$$

$$C_{\text{final}} = 3.63\text{mg/l Ammonia}$$

This is in breach of the 0.14mg/L 95%ile EQS for Ammonia

#### **Normal Scenario:**

Normal Discharge, Median Flow in the River, Mean Ammonia in Discharge.

$$\text{Flow of River (Median)} = 4.955\text{m}^3/\text{sec}$$

$$\text{Mean Ammonia in River (upstream)} = 0.05\text{mg/L}$$

$$\text{Normal volume of discharge} = 0.019\text{m}^3/\text{sec}$$

$$\text{Mean value for Ammonia in discharge} = 0.1\text{mg/L}$$

$$C_{\text{final}} = \frac{(4.955 \times 0.05) + (0.019 \times 0.1)}{(4.955 + 0.019)}$$

$$C_{\text{final}} = 0.0502\text{mg/l Ammonia}$$

This meets the 0.065mg/L mean EQS for Ammonia

#### **MASS BALANCE EQUATIONS FOR ORTHOPHOSPHATE:**

##### **Worst Case Scenario:**

Maximum Discharge, Low Flow in the River, Maximum Orthophosphate in Discharge.

$$\text{Flow of River (95%ile)} = 0.34\text{m}^3/\text{sec}$$

$$\text{Mean Orthophosphate in River (upstream)} = 0.025\text{mg/L}$$

$$\text{Max volume of discharge} = 0.057\text{m}^3/\text{sec}$$

$$\text{Max value for Orthophosphate in discharge} = 4.5\text{mg/L}$$

$$C_{\text{final}} = \frac{(0.34 \times 0.025) + (0.057 \times 4.5)}{(0.34 + 0.057)}$$

$$C_{\text{final}} = 0.67\text{mg/l Orthophosphate}$$

This meets the 0.075mg/L 95%ile EQS for Orthophosphate

##### **Normal Scenario:**

Normal Discharge, Median Flow in the River, Mean Orthophosphate in Discharge.

$$\text{Flow of River (Median)} = 4.955\text{m}^3/\text{sec}$$

$$\text{Mean Orthophosphate in River (upstream)} = 0.025\text{mg/L}$$

$$\text{Normal volume of discharge} = 0.019\text{m}^3/\text{sec}$$

$$\text{Mean value for Orthophosphate in discharge} = 1.77\text{mg/L}$$

$$C_{\text{final}} = \frac{(4.955 \times 0.025) + (0.019 \times 1.77)}{(4.955 + 0.019)}$$

$$C_{\text{final}} = 0.031\text{mg/l Orthophosphate}$$

This meets the 0.035mg/L mean EQS for Orthophosphate

- (ii) *An ecological assessment on the predicted impact of the discharges from the agglomeration on sensitive species (such as Margaritifera Margaritifera – Freshwater Pearl Mussel) that may be present in the receiving water downstream of the discharges.*

There is no SPA SAC pearl mussel site downstream of the discharge.

### **Abstraction Points**

- (j) *Provide a summary of the intake monitoring results for the abstraction at the Inniscarra Water Treatment Plant and assess compliance with the relevant drinking water category (S.I. 294/1989 – Quality of Surface Water Intended for the Abstraction of Drinking Water Regulations). Reassess any potential risks to the water quality at the downstream abstraction point due to discharges from the waste water works.*

*The nearest water abstraction point is 20km downstream in the River Lee at Inniscarra.*

### **Further Works**

- (m) *Provide further details of any work necessary to meet relevant effluent discharge standards and a timeframe and schedule for such works. The response should include:*
- (i) *Clarification of the scope of the proposed works to be carried out in the Macroon agglomeration under the 2007 – 2009 Water Services Investment Programme funding (total €5,150,000) and provide the proposed start date and completion date of the various works to be carried out, as applicable.*

The Macroon Sewerage Scheme WWTP Upgrade Preliminary Report summarises the recommended works as follows;

- Provision of 411m of 375mm Ductile Iron Rising Main
- Provision of 831m of 600mm Concrete Gravity Main
- Provision of 397m of 225-375 Concrete Gravity Mains following CCTV survey
- Provision of localised network refurbishment following CCTV survey
- Upgrade of the existing Waste Water Treatment Plant to serve a PE of 7326PE for Phase One and a PE of 9994PE for Phase Two by provision of the following process units and Structure
  - Grit Removal System and cover to inlet works
  - Storm water pumping station and Storm Holding Tank
  - Upgrade existing P-Dosing system
  - New Additional Aeration Lanes 2 x 630m<sup>3</sup> for Phases 1 & 2
  - New Final Settlement Tank
  - Final Effluent Lift Pumping Station and Flood Defence Embankment to protect WWTP from High River Flows
  - New Sludge Holding tank with cover and additional sludge belt thickener and upgrade to sludge building
  - Upgrade of Control Room and installation of Telemetry System

However the Scheme has been omitted from the WSIP 2010-2012. This effectively means that the scheme is not approved to proceed and that funding will not be provided. Therefore no start dates or completion dates are available.

- (ii) *Details of the programme of improvements to ensure that discharges other than the primary and secondary discharges comply with the DoEHLG guidance on Storm Water Overflows. Include the proposed timeframe for compliance with the DoEHLG guidance.*

The Macroom Sewerage Scheme WWTP Upgrade Preliminary Report recommends that new storm sewers must be designed to convey the stormwater runoff from the undeveloped lands in the environs of Macroom. The surface water from new developments may be discharged to ground (if ground conditions are suitable) or conveyed into the Sullane River. All future developments will be required to install separate foul and surface water sewers. Any new developments should also incorporate SUDS techniques of attenuation and the use of permeable materials for car parks etc in order to limit the amount of water entering the Sullane River. This proposed storm sewer network is to be developer driven.

The proposed upgrades to the treatment plant include the provision of storm storage for flows of 3DWF for 2 hours. This will consist of an above ground storm storage tank where flows will be pumped into the holding tank during storm events. On cessation of the storm event flows will then be returned to the main process for full treatment. During long/high intensity storm events the storm tank may become full and a high level overflow with 6mm screening facility and flow monitoring will be incorporated to the tank which will then discharge these diluted storm flows to the Sullane River.

However the Scheme has been omitted from the WSIP 2010-2012. This effectively means that the scheme is not approved to proceed and that funding will not be provided. Therefore no timeframe for compliance with the DoEHLG guidance is available.

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# Laboratory Test Report

## Cork County Council

### Waste Water Laboratory

#### Inniscarra, Co. Cork

Industry Name: **Macroom Sewage Works**  
 Address: **Macroom, Co. Cork**

Industry Code No. **311**  
 Report Ref No. **V17-02-11-004**  
 Issued to **M. Healy**  
**SEE**  
**CCC**

Licence No.                      Type    S

Licence	Volume	pH	B.O.D.	C.O.D.	Sus Solids	TP-P	Code	Comments
Limit	m3	12.99	mg/l	mg/l	mg/l	mg/l		
	999999	3.99	25	125	35	99		
Date								
21/01/10			1	<21	<2.5		GU016	C
04/02/10			19	100	24		GU068	C
04/03/10	2168		6	45	11		GU152	C
08/04/10			* 27	91	27		GU208	C
05/05/10			13	<21	14		GU307	C
03/06/10			4.8	44	8		GU380	C
08/07/10			6	40	19		GU495	C
12/08/10			1	97	5		GU584	G
09/09/10			4.5	39	9		GU671	C
04/11/10			8	68	34		GU846	C
24/11/10			5.1	41	9		GU904	C
14/12/10			16	78	17		GU958	C
% Compl.	100	***	91	100	100	***	***	***
Average	2168.00	******	9.28	53.58	14.5	******	******	******

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The samples are received at the Laboratory on the day of sampling. The above test methods are based on Standard Methods for the examination of Water and Waste Water, 21st Edition 2005, APHA, AWWA, WEF. C = Composite Sample, G = Grab Sample.

The compliance value may be varied on items marked with an \* by the application of uncertainty of measurement values on reverse Page Chemical Procedure Numbers(CP No.) for INAB accredited tests are as follows:

- CP NO. 1 = B.O.D.
- CP NO. 3 = S.S.
- CP NO. 20 = TP-P
- CP NO. 5 = pH
- CP NO. 6 = C.O.D.
- CP NO. 7 = Cl<sup>-</sup> **VH**
- CP NO. 22 = Ammonia(KONELAB)
- CP NO. 23 = OPO4-P(KONELAB)
- CP NO. 24 = Chloride (KONELAB)
- CP NO. 25 = Sulphate(KONELAB)

This report relates only to the samples listed above. This report shall not be reproduced except in full and only with the approval of the testing laboratory. Cork County Council is not accredited by INAB for tests marked with \$. Kg loadings based on flows as supplied by the company. ~ indicates results that have been edited.

Reported by: V. Hannon                      Date: 17/2/2011

Ms. V. Hannon                      Technical Manager   
 Deputy Technical Manager



## **Wastewater Laboratory Cork County Council- Test Report Addendum**

- a. Sample date reported in column 1 on this report is the date of collection of the sample from the industry name and address as outlined at the top of the report.
- b. Cork County Council wastewater laboratory are not accredited for sample collection.
- c. Data reported in (d) below is defined in section 5.10.3 (c) in wastewater laboratory quality manual.

### d. Table of Uncertainty Of Measurement – Estimate Of Values For Accredited Tests

<b>Chemical Procedure No.</b>	<b>range</b>	<b>Test Name</b>	<b>% Estimated Uncertainty</b>
CP No. 1	1 - 8 mg/l	Biochemical Oxygen Demand (BOD)	± 8
CP No. 1	9 –70 mg/l	Biochemical Oxygen Demand (BOD)	± 10
CP No. 1	71 - 700 mg/l	Biochemical Oxygen Demand (BOD)	± 20
CP No. 3	35 mg/l	Suspended Solids (SS)	± 18
CP No. 3	200 - 400mg/l	Suspended Solids (SS)	± 12
CP No. 3	700 – 1000mg/l	Suspended Solids (SS)	± 9
CP No. 5	2 - 12	pH	± 4
CP No. 6	< 6 mg/l	Chemical Oxygen Demand (COD LR)	± 47
CP No. 6	15 – 75 mg/l	Chemical Oxygen Demand (COD LR)	± 82
CP No. 6	100 –135 mg/l	Chemical Oxygen Demand (COD LR)	± 21
CP No. 6	120 – 1500mg/l	Chemical Oxygen Demand (COD) High Range	± 5
CP No. 20	0.2 – 2.5 mg/l	Total Phosphorus (TP-P)	± 12
CP No. 22	0.1 – 0.9 mg/l	Ammonia (Konelab)	± 19
CP No. 22	1.0 – 2.0 mg/l	Ammonia (Konelab)	± 5
CP No. 22	2 – 10 mg/l	Ammonia (Konelab)	± 15
CP No. 22	11 – 19 mg/l	Ammonia (Konelab)	± 5
CP No. 22	20 – 25 mg/l	Ammonia (Konelab)	± 7
CP No. 23	0.05 – 1.00 mg/l	Orthophosphate as P (Konelab)	± 6
CP No. 24	25.00 – 99.00 mg/l	Chloride (Konelab)	± 5
CP No. 24	100.00 – 200.00 mg/l	Chloride (Konelab)	± 8
CP No. 25	30.00 – 199.00 mg/l	Sulphate (Konelab)	± 5
CP No. 25	200.00 – 250.00 mg/l	Sulphate (Konelab)	± 4

**October 2010**

The raw data used to evaluate the above estimations is stored in the Wastewater Laboratory, Cork County Council.

The method followed is located in the Uncertainty of Measurement file and in the Eurachem Guidelines for Quantifying Uncertainty in Analytical Measurement. Expanded uncertainty coverage factor is 2 and the confidence level is 95%.