



This memo has been cleared for submission to the Board by Senior Inspector, Dr Karen Creed  
 Signed: Suzanne South Date: 02/08/2013

**RESOURCE USE.**

**INSPECTORS REPORT ON A WASTE WATER DISCHARGE LICENCE APPLICATION**

To:	Board
From:	Suzanne Wylde, Yvonne English, Gavin Clabby, Éimer Godsil, Environmental Licensing Programme Ciara Maxwell & Simon Hussey
Date:	13 <sup>th</sup> August 2013
RE:	Application for a Waste Water Discharge Licence from Cork County Council, for the agglomeration named <b>Clondulane and Environs</b> , Reg. No. D0445-01.

**Application Details**

Schedule of discharge licensed:	Discharges from agglomerations with a population equivalent of 500 to 1,000.
Licence application received:	22/06/2009
Notices under Regulation 18(3)(b) issued:	31/5/10, 15/7/10, 11/4/13, 18/4/13,
Information under Regulation 18(3)(b) received:	30/6/10, 27/7/10, 4/7/11, 25/4/13
Notices under Regulation 20(1) issued:	29/5/13
Information under Regulation 20(1) received:	30/5/13
Site notice check:	31/7/09
Submission(s) Received:	None

**1. Agglomeration**

This application relates to the agglomeration named Clondulane and Environs in Co. Cork (See map in Appendix 1).

The WWTP was designed to cater for a population equivalent (p.e.) of 700, while the existing p.e. served by the wastewater works is 450. The influent to the wastewater treatment plant is primarily domestic wastewater. The sewage system in Clondulane is a partially combined system.

The WWTP provides secondary treatment. The plant consists of inlet works with an automatic screen and storm water storage, a forward feeding pump sump, aeration tank and clarifier.

## 2. Discharges to waters

The final treated effluent discharges through the primary discharge point (SW001) to the Careysville Stream. The normal flow from the WWTP is 198m<sup>3</sup>/day, while the maximum discharge from the WWTP is 595m<sup>3</sup>/day. The final treated effluent quality from the WWTP in 2011 was within the limits prescribed in the Urban Wastewater Treatment Regulations (BOD 25mg/l, COD 125mg/l and suspended solids 35mg/l). The effluent monitoring results for 2011 for BOD, COD and suspended solids were in the range of 1-6mg/l, 21-45mg/l and 3-14mg/l, respectively. The population equivalent of the agglomeration is below the 2,000 p.e. threshold at which the ELVs specified in Part 1 of the second schedule of the UWWT Regulations (2001, as amended) apply.

For agglomerations under this threshold, "*appropriate treatment*" is required. The term appropriate treatment is defined in the Regulations in terms of the level of treatment necessary to protect water quality.

There are no secondary discharge points within the agglomeration.

There are no pumping stations, managed by the local authority, within the existing agglomeration.

The inlet works at the treatment plant consist of a forward feeding pump sump. There is an emergency overflow from this sump which discharges to a storm tank during power failure. The storm tank has a storage capacity of 34m<sup>3</sup>. In the event of a prolonged outage, the storm tank discharges to the effluent stream, prior to the outlet flume, before discharging to the Careysville Stream.

There are no stormwater overflows within the agglomeration.

*Schedule A: Discharges & Discharge Monitoring* of the recommended licence (RL) specifies the Emission Limit Values (ELVs) to which the discharge(s) from the Clondulane agglomeration must conform. The ELVs are aimed at providing a high degree of protection to the receiving water body. Monitoring of the discharges will take place as per this schedule of the RL.

### 3. Receiving waters and impact

The following table summarises the main considerations in relation to the Careysville Stream downstream of the primary discharge.

Table 1: Receiving waters

Characteristic	Classification	Comment
Receiving water name and type	Careysville Stream	WFD Code:IE_SW_18_2755
Applicable Regulations	UWWT Regulations <sup>Note 1</sup>	In compliance
	Surface Water Regulations <sup>Note 2</sup>	In compliance
Designations	Blackwater River (Cork/Waterford)	SAC Site code: 002170 0.5km d/s of primary discharge
	Blackwater Callows	SPA Site code: 004094 0.5km d/s of primary discharge
EPA monitoring stations	Fermoy Br (EPA RS Code: RS18B022210)	5.5km u/s of SW001 on River Blackwater
	W of Kilmurry H (EPA RS Code: RS18B022450)	2.5km d/s of SW001 on River Blackwater
Biological quality rating (Q value)	Q4 (2012) (Blackwater)	U/s of WWTP on River Blackwater
	Q4 (2012) (Blackwater)	D/s of WWTP on River Blackwater
WFD status	Moderate	Restore (2021)
WFD Risk Category	1a (Blackwater)	At risk of not achieving good status

Note 1: Urban Wastewater Treatment Regulations, as amended, 2001.

Note 2: European Communities Environmental Objectives (Surface Water) Regulations 2009 (as amended).

The primary discharge point SW001 is located approximately 500m upstream of the Blackwater River (Cork Waterford) SAC (site code: 002170), which has been designated partly on the basis that the fresh water pearl mussel, *Margaritifera margaritifera* is a qualifying interest. The first schedule of the *European Communities Environmental Objectives (Freshwater Pearl Mussel) Regulations S.I No. 296 of 2009 (Pearl Mussel Regulations 2009)* lists the 27 designated Freshwater Pearl Mussel sites. The Blackwater (Munster) River, of which the Careysville Stream is a tributary, is one of these designated freshwater pearl mussel sites.

The Blackwater Water Management Unit Action Plan (WMUAP) identifies the WWTP in Clondulane as a point pressure on the Blackwater catchment.

The Local Authority carried out upstream and downstream ambient monitoring for 2009. These monitoring results indicate that the receiving water is in compliance with the high status standards for BOD, ammonia, and orthophosphate as set in the European Communities Environmental Objectives (Surface Water) Regulations 2009, (as amended).

The Blackwater (Munster) River, of which the Careysville Stream is a tributary, is required to support the freshwater pearl mussel (*Margaritifera margaritifera*) both under the European Communities Environmental Objectives (Freshwater Pearl Mussel) Regulations (2009) and the 'Freshwater Pearl Mussel Munster Blackwater Sub-Basin Management Plan'. The proposed emission limit values (ELVs) for the RL, as drafted, are therefore based on the high status standards as laid down in the European Communities Environmental Objectives (Surface Water) Regulations (2009). The high status limits (95%ile) for BOD, ammonia and orthophosphate are 2.2mg/l, 0.090mg/l and 0.045mg/l, respectively.

Table 2: Mass Balance Calculations.

Parameter	Notional Clean River Values <sup>Note 1</sup>	Proposed ELVs for discharge from SW001 (mg/l)	Contribution from primary discharge (mg/l)	Predicted downstream concentration (mg/l)	Relevant standard (mg/l)
BOD	0.26	8	1.5708	1.8308	2.2 <sup>Note 2</sup>
Orthophosphate	0.005	0.1	0.0193	0.0243	0.045 <sup>Note 2</sup>
Total Ammonia	0.008	0.3	0.0593	0.0673	0.090 <sup>Note 2</sup>

Note 1: Notional clean river values for AC based on 1/5<sup>th</sup> of the mean "High Status" standard in the European Communities Environmental Objectives (Surface Waters) Regulations 2009, as amended.

Note 2: European Communities Environmental Objectives (Surface Waters) Regulations 2009, as amended.

The 'notional clean river' approach (formulated by the Office of Environmental Assessment) has been used, whereby other sources of upstream pollution will be dealt with separately. The purpose of the mass balance calculations is to show the impact of the discharge with respect to water quality standards. The sources which give rise to the background concentrations are outside the control of this licence. The South Western River Basin Management Plan provides details of recommendations and planned measures to reduce pollution in water courses such as control of unsewered waste water discharges, control of agricultural sources of pollution and control of environmental impacts from forestry. The mass balance calculations are based on the 95%ile flow in the receiving water, the notional clean river background concentrations, the normal effluent discharge rate and the maximum concentration of the parameter in the effluent (Table 2). The 95%ile flow in the river at the primary discharge point is 0.009m<sup>3</sup>/s (based on the best estimate from OEA).

Using the notional clean river approach the mass balance calculations indicate that the predicted downstream concentrations for BOD, orthophosphate and ammonia are within the high status standards set in the European Communities Environmental Objectives (Surface Water) Regulations 2009, (as amended).

The limit of 0.045mg/l for orthophosphate, 0.090mg/l for ammonia and 2.2mg/l for BOD in the receiving water are statutory limits set in the European Communities Environmental Objectives (Surface Water) Regulations 2009, (as amended), to achieve high status in the surface water. An emission limit value of 0.1mg/l is recommended for orthophosphate, 0.3mg/l for ammonia and 8mg/l for BOD in the RL. The limits are set based on the mass balance calculations. The WWTP has an aeration tank with a clarifier. The applicants monitoring results indicate that they can meet a BOD level of 8mg/l. Operational efficiencies and infrastructural improvements may be required to reduce ammonia levels in the final discharge. The Clondulane WWTP will also require phosphorus removal to be installed at the plant. Following discussions with the Department of Environment, Community and Local Government

(DECLG) inspector the Programme of Improvements stipulates that this be completed by 31<sup>st</sup> December 2013.

Condition 4.21 of the RD, as drafted, requires the licensee to review the finalised version of the Freshwater Pearl Mussel Munster Blackwater Sub Basin Management Plan for the Blackwater Catchment on an annual basis, implement applicable measures and submit a report of the measures implemented as part of the AER.

#### **4. Ambient Monitoring**

*Schedule B.2: Receiving Water Monitoring* of the RL specifies the parameters, analysis method and frequency for which ambient monitoring of the primary discharge shall be carried out. The requirements for ambient monitoring in *Schedule B.2: Receiving Water Monitoring* are sufficient to ensure that there will be no deterioration in the status of the receiving water as a result of the discharge.

#### **5. Combined Approach**

The Wastewater Discharge (Authorisation) Regulations (2007, as amended) specify that a 'combined approach' in relation to licensing of waste water works must be taken, whereby the emission limits for the discharge are established on the basis of the stricter of either or both, the limits and controls required under the Urban Waste Water Treatment Regulations (2001, as amended) and the limits determined under statute or Directive for the purpose of achieving the environmental objectives established for surface waters, groundwater or protected areas for the water body into which the discharge is made. The RL as drafted gives effect to the principle of the Combined Approach as defined in Wastewater Discharge (Authorisation) Regulations (2007, as amended).

#### **6. Programme of Improvements**

The WWTP in the Clondulane and Environs agglomeration provides secondary treatment for wastewater. The RL, as drafted, requires the local authority to install phosphorous removal by the 31<sup>st</sup> December 2013 to ensure that the receiving water can achieve the high status requirements of the European Communities Environmental Objectives (Surface Water) Regulations (2009). Condition 5.1 of the RL requires the licensee to prepare and submit to the Agency a programme of infrastructural improvements to maximise the effectiveness and efficiency of the waste water works. The conditions and emission limit values specified in the RL will ensure no deterioration in the quality of the receiving waters as a result of the discharge.

#### **7. Compliance with EU Directives**

In considering the application, regard was had to the requirements of Regulation 6(2) of the Wastewater Discharge (Authorisation) Regulations (2007, as amended) notably:

##### Drinking Water Abstraction Regulations

There are no drinking water abstractions downstream of the discharge from the Clondulane and Environs WWTP.

##### Sensitive Waters

The Careysville Stream is not designated as a sensitive water under the Urban Wastewater Treatment Regulations.

Water Framework Directive [2000/60/EC]

The RL, as drafted, transposes the requirements of the Water Framework Directive. In particular, *Condition 3: Discharges* provides conditions regulating discharges to waters. *Schedule A: Discharges & Discharge Monitoring* specifies limit values for those substances contained within the waste water discharge. Those limits specified in the RL are determined with the aim of achieving good water quality status by 2015.

European Communities Environmental Objectives (Surface Water) Regulations 2009, (as amended)

The ambient monitoring data supplied by Cork County Council demonstrates compliance in the receiving water with the high status standards for BOD, ammonia, and orthophosphate as set in European Communities Environmental Objectives (Surface Water) Regulations 2009, (as amended). The RL, as drafted, includes emission limit values to ensure that the treatment provided by the plant is sufficient to satisfy the European Communities Environmental Objectives (Surface Water) Regulations 2009, (as amended).

Urban Waste Water Treatment Directive [91/271/EEC]

The Clondulane and Environs WWTP complies with the requirements of the Urban Waste Water Treatment Directive, in terms of the level of treatment provided. The RL, as drafted, has regard to the requirements of the Urban Waste Water Treatment Directive.

Dangerous Substances Directive [2006/11/EC]

The applicant has provided once-off sampling results for 8 of the 19 dangerous substances in the primary discharge for the purposes of the licence application. The measured concentrations are not considered significant. Condition 4.20 of the RL, as drafted, requires the licensee to identify the priority substances for monitoring by undertaking a risk-based assessment in accordance with "*Guidance on the Screening for Priority Substances for Waste Water Discharge Licences*" issued by the Agency. Monitoring for any identified priority substance shall be carried out as required by the Agency.

Birds Directive [79/409/EEC] & Habitats Directive [92/43/EEC]

Clondulane WWTP discharges to Careysville Stream, a tributary of the Blackwater (Munster) River. The stream outfalls to the Blackwater River approximately 0.5km downstream of the discharge from Clondulane WWTP. The Blackwater River is designated as the Blackwater River (Cork/Waterford) SAC<sup>1</sup> (Site code: 002170) and the Blackwater Callows SPA<sup>2</sup> (004094) at the confluence location. The site is protected for priority habitats listed under Annex 1 of the *Habitats Directive*. The qualifying habitats are: Estuaries; Mudflats and sandflats not covered by seawater at low tide; Perennial vegetation of stony banks; *Salicornia* and other annuals colonizing mud and sand; Atlantic salt meadows; Mediterranean salt meadows; Water courses of plain to montane levels with the *Ranunculus fluitantis* and *Callitriche-Batrachion* vegetation; Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles;

<sup>1</sup> SAC: Special Area of Conservation designated under the *Habitats Directive*, Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora.

<sup>2</sup> SPA: Special Protection Area designated under the *Birds Directive*, Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds.

\*Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* and \**Taxus baccata* woods of the British Isles<sup>3</sup>.

The SAC is also selected for protection of species listed under Annex II of the *Habitats Directive*. The qualifying species of the SAC are: Freshwater Pearl Mussel; White-clawed Crayfish; Sea Lamprey; Brook Lamprey; River Lamprey; Twaite Shad; Atlantic Salmon; Otter and the Killarney Fern.

The Blackwater Callows SPA is designated<sup>4</sup> under the *Birds Directive* for the protection of Whooper Swan (*Cygnus cygnus*), Wigeon (*Anas penelope*), Teal (*Anas crecca*), Black-tailed Godwit (*Limosa limosa*), Wetlands & Waterbirds.

This SAC/SPA overlaps with the SPAs: Blackwater Estuary SPA (004028), and Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA (004161). It is also adjacent to Killarney National Park, Macgillycuddy's Reeks and Caragh River Catchment SAC (000365).

A screening (Stage 1) for Appropriate Assessment of the discharge(s) from the agglomeration was undertaken to assess, in view of best scientific knowledge and the conservation objectives of the site, if the discharge(s), individually or in combination with other plans or projects, is likely to have a significant effect on the European Sites. Following screening it was determined that an Appropriate Assessment was required to assess the impact of the discharge(s) on the Blackwater River (Cork/Waterford) SAC and the Blackwater Callows SPA.

Populations of pearl mussel are located approximately 500m downstream of the confluence of the Careysville Stream with the Blackwater River. Clondulane WWTP is not listed on the Freshwater Pearl Mussel Munster Blackwater Sub-Basin Management Plan (Second Draft) as a plant potentially having an adverse effect on the pearl mussel.

The Careysville Stream is a short water body, the source being only 3 km to the south. No other surface water discharges occur along the stream and cumulative pressure is minimal. The Stream is very minor in scale (approximately 2 metres wide at the discharge point), with limited assimilative capacity.

While it is considered that due to the scale of the Clondulane discharge, there is unlikely to be a direct impact on the pearl mussel populations in the Blackwater River, it is considered that indirect effects on the qualifying species (Pearl Mussel, River and Brook Lamprey and Atlantic Salmon) in the Blackwater catchment are possible due to deterioration in the receiving water quality. An elevation in suspended solids from effluent discharges poses a risk to salmon and lamprey recruitment where settlement on spawning gravels and /or redds may occur. Nutrient enrichment would lead to accelerated algal and plant growth with implications for pearl mussel, lamprey and salmon stocks and bird species feeding in the catchment, including wintering wildfowl. A reduction in salmonids as prey species may negatively affect otter populations.

The AA concluded that no significant impacts are likely on the Blackwater River (Cork/Waterford) SAC or on the Blackwater Callows SPA from the Clondulane WWTP subject to the commencement of phosphorous removal at the WWTP. The Water Services Authority is required to install phosphorus removal by the 31<sup>st</sup> December 2013 to avoid impacts from the discharge on the European Sites. An emission limit value of 25 mg/l has been set for suspended solids in the Recommended Licence to

<sup>3</sup> \* indicates a priority habitat under the *Habitats Directive*.

<sup>4</sup> S.I. No. 191/2012 - European Communities (Conservation of Wild Birds (Blackwater Callows Special Protection Area 004094)) Regulations 2012.

provide protection for the relevant qualifying species. A limit of 0.3mg/l has been set for ammonia. The limits set for BOD, orthophosphate and total ammonia will assist in the achievement of High Status for the water body, in accordance with the Water Framework Directive.

The Appropriate Assessment demonstrates that the discharge will not adversely affect the integrity of the European Sites subject to the mitigation measures of phosphorus removal at the treatment plant and adherence to appropriate emission limit values in the discharge. In accordance with the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. No. 477 of 2011), pursuant to Article 6(3) of the *Habitats Directive*, the discharge will not adversely affect the integrity, in terms of maintaining favourable conservation status of the qualifying interests of the European Site, having regard to its conservation objectives.

*Schedule C.1: Specified Improvement Programme* requires the installation of phosphorus removal at the WWTP by 31<sup>st</sup> December 2013.

#### Environmental Impact Assessment Directive [85/337/EEC]

An EIS was not required and should one be required as part of any programme of improvements, it will be dealt with as per Condition 1.8 of the RL.

#### Environmental Liabilities Directive [2004/35/EC]

Condition 7.2 of the RL satisfies the requirements of the Environmental Liabilities Directive in particular those requirements outlined in Article 3(1) and Annex II of 2004/35/EC.

### **7. Cross Office Liaison**

Advice and guidance issued by the Technical Working Group (TWG) was followed in my assessment of this application. Advice and guidance issued by the TWG is prepared through a detailed cross-office co-operative process, with the concerns of all sides taken into account. The Board of the Agency has endorsed the advice and guidance issued by the TWG for use by licensing inspectors in the assessment of wastewater discharge licence applications.

### **8. Submissions**

No submissions were received in relation to this application.

### **9. Charges**

The RL sets an annual charge for the agglomeration at €4,152.18 and is reflective of the monitoring and enforcement regime being proposed for the agglomeration.



**10. Recommendation**

I recommend that a Final Licence be issued subject to the conditions and for the reasons as set out in the attached Recommended Licence.

Signed,

A handwritten signature in cursive script, reading "Éimer Godsil", is written over a horizontal line.

**Suzanne Wylde, Yvonne English, Gavin Clabby, Éimer Godsil,  
Ciara Maxwell & Simon Hussey**  
Environmental Licensing Programme

**Annex 1: Map showing location of Clondulane WWTP and associated primary discharge point.**

