



**OFFICE OF CLIMATE,  
LICENSING & RESOURCE USE.**

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

<b>To:</b>	Dara Lynott, Director	
<b>From:</b>	Loretta Joyce	Environmental Licensing Programme
<b>Date:</b>	9 <sup>th</sup> January 2015	
<b>RE:</b>	Application for a Waste Water Discharge Licence from Irish Water for the Kilworth & Environs agglomeration, County Cork, Reg. No. D0334-01.	

Application Details	
Schedule of discharge licensed:	Discharges from agglomerations with a population equivalent of 1,001 to 2,000
Licence application received:	27/02/2009
Notice under Regulation 18(3)(b) issued:	22/12/2009, 30/04/2010, 15/07/2010, 10/03/2014
Information under Reg.18(3)(b) received:	01/06/2010, 30/07/2010, 04/07/2011, 12/09/2014
Site notice check:	23/03/2009
Site visit:	05/02/2014
Submissions Received:	None

**1. Agglomeration**

This application relates to the Kilworth & Environs agglomeration in County Cork. The application was originally made by Cork County Council and subsequently transferred to Irish Water on 1<sup>st</sup> January 2014 under the Water Services (No. 2) Act 2013.

The Kilworth & Environs agglomeration had a population equivalent (p.e.) of 1,200 in 2012. A projected increase of 20% is used in the mass balance below. There are no identified sources of industrial waste water in the agglomeration.

The agglomeration is served by a tertiary level WWTP with a design capacity of 2,500 p.e. The WWTP, commissioned in 2009, consists of inlet works, automatic screening, a balance tank, an aeration tank (fine bubble), clarifier, 2 no. sand filters, picket fence thickener and storm water holding tank. There is chemical dosing for phosphorus removal. There is a flow meter and final effluent composite sampler in place at the WWTP.

## 2. Discharges to waters

### Primary Discharge

The primary discharge (SW001) is the piped outfall from the WWTP to the Douglas River, 15m from the WWTP. The Agency's Office of Environmental Assessment could not provide a reliable 95%ile river flow and indicated that 95%ile river flow is likely to be greater than 0.03m<sup>3</sup>/sec but less than 0.13m<sup>3</sup>/sec. At a river flow of 0.03m<sup>3</sup>/sec and 0.13m<sup>3</sup>/sec there are between 6 and 26 dilutions respectively available for the projected normal waste water discharge (0.0050m<sup>3</sup>/day). The applicant's 2012 treated effluent monitoring results are shown in Table 1, along with the WWTP design standards.

**Table 1. WWTP monitoring results 2012 (average based on 6 samples)**

Parameter	BOD (mg/l)	COD (mg/l)	Suspended solids (mg/l)	Ammonia (mg/l)	Total P (mg/l)
Average effluent	7	34.5	11.5	-	-
WWTP Design standards	10	70	10	-	1

### Secondary Discharges

There are no secondary waste water discharges from the agglomeration.

### Storm water overflows

There is one storm water overflow, SW002, at the inlet to the WWTP, post screening, which discharges via the primary discharge, SW001.

### Emergency overflows

There are five pumping stations in the agglomeration. There are no emergency overflows in the agglomeration.

## 3. Receiving waters and impact

The receiving water is the Douglas River which is located in the South Western River Basin District. The following table summarises the main considerations in relation to the receiving waters.

**Table 2. Receiving waters**

Characteristic	Description	Comment
Receiving water name and type	Douglas (Araglin) River IE_SW_18_2543	Converges with Araglin (Blackwater) River, 1.1km downstream of SW001
Relevant designations within 10km	Blackwater River (Cork/Waterford) SAC Site Code: 002170  Blackwater Callows SPA site Code: 004094  Blackwater (Munster) River is a Salmonid Water and Nutrient Sensitive Water  There are Pearl Mussel	SW001 discharges directly into this SAC  2.45km downstream of SW001  3km downstream of SW001

	locations on the Blackwater River. (Munster)	7.8km downstream of SW001
Drinking water abstraction within 10 km d/s	None	
EPA monitoring stations & Biological quality rating (Q value)	U/s station RS18D030400 1.05km d/s of SW001  D/s station RS18D030500 700m d/s of SW001	Q4-5 in 2012  Q4 in 2012
WFD status	Good	2011
WFD Risk Category	1a, water body at significant risk of failing objectives	2008
WFD Objective	Protect good status	2021 deadline
WFD protected areas	RPA drinking water groundwater	

## 6. Programme of Improvements

Ambient water quality monitoring data for the Douglas River supplied by the applicant in accordance with the Water Framework Directive is summarised in Table 3 below. The results show that BOD, Orthophosphate and Ammonia levels downstream of the primary discharge comply with the good status water quality standards in the Environmental Objectives Regulations 2009, as amended.

**Table 3. Water Quality in the Douglas River**

Parameter (mg/l)	aSW-1u 1.05km u/s of SW001 (3 samples, 2008-2009)	RS18D030500 700m d/s of SW001 (4 samples, 2012)	Water Quality Standards <sup>Note 1</sup>
BOD	1.5	1.33	≤ 1.5 mg/l (mean)
Orthophosphate (as P)	<0.05	0.024	≤ 0.035 mg/l (mean)
Ammonia (as N)	0.042	0.05	≤ 0.065 mg/l (mean)

**Note 1:** Good status under the European Communities Environmental Objectives (Surface Waters) Regulations 2009, as amended.

Table 4 below summarises the mass balance calculations which show the impact of the primary discharge on the receiving water at a projected loading of 1,440p.e. (1,200 p.e. plus 20%). The calculations use a low river flow of 0.08m<sup>3</sup>/sec (midpoint between 0.03m<sup>3</sup>/sec and 0.13m<sup>3</sup>/sec) and the 'notionally clean river' approach (a hypothetically clean stretch of river) provided by the Office of Environmental Assessment as there are a limited number of background upstream monitoring results.

**Table 4. Mass Balance Calculations**

Parameter (mg/l)	Proposed ELVs for Primary discharge	Contribution from primary discharge	Contribution from notionally clean background <sup>Note 1</sup>	Predicted Downstream concentration	Water Quality Standards <sup>Note 2</sup>
BOD	10 (from date of grant of licence)	0.59	0.25	0.84	≤ 2.6
Orthophosphate (as P)	0.85 (from 2019)	0.05	0.005	0.055	≤ 0.075
Ammonia (as N)	1.5 (from 2019)	0.09	0.007	0.097	≤ 0.14

**Note 1:** The notionally clean background concentrations are 0.26 mg/l BOD, 0.005 mg/l ortho-phosphate (as P) and 0.008 mg/l ammonia (as N).

**Note 2:** Good status under the European Communities Environmental Objectives (Surface Waters) Regulations 2009, as amended.

Kilworth WWTP is not listed among the 18 WWTPs deemed to have a significant adverse effect on the Pearl Mussel or its habitat in the Freshwater Pearl Mussel Munster Blackwater Sub Basin Management Plan. The discharge as licensed will not impact on the Pearl Mussel location 7.8km downstream due to the distance between the primary discharge and Pearl Mussel location, the volume and quality of the effluent and the significant dilution available in the River Blackwater (Munster) downstream. Therefore, the proposed emission limit values (ELVs) for the RL, as drafted, are based on good rather than high status standards as laid down in the Surface Waters Regulations 2009, as amended. Furthermore, good rather than high status standards are used following consultation with the National Parks and Wildlife Service.

The calculations show that the predicted downstream concentrations of Orthophosphate as P and Ammonia as N, based on the ELVs included in the RL from 31/12/2019, would comply with the good status standards in the Environmental Objectives Regulations 2009, as amended.

The RL proposes ELVs of 10mg/l BOD, 125mg/l COD and 35mg/l Suspended Solids from date of grant of licence and proposes 0.85mg/l Orthophosphate as P and 1.5mg/l Ammonia-Total as N from 31<sup>st</sup> December 2019. 10mg/l BOD is the design standard of the WWTP. There is chemical dosing for phosphorus removal in Kilworth WWTP. Plants with chemical dosing for phosphorus removal can achieve 0.5 to 0.8mg/l Orthophosphate as P. Conventional activated sludge plants can achieve 2 to 5 mg/l Ammonia and nitrogen removal filters can achieve 0.5 to 2mg/l Ammonia.

#### **4. Site Visit**

I visited the Kilworth and Environs agglomeration on 05/02/2014 and met with a representative of Irish Water. I visited the WWTP observed the primary discharge point and receiving waters.

#### **5. Ambient Monitoring**

*Schedule B.2 Receiving Water Monitoring* of the RL specifies quarterly monitoring of the Douglas River for a number of specified parameters.

- **Upstream:** The location identified by Cork County Council is aSW-1u (grid ref. 183987E 103428N) located approximately 1.05km upstream of SW001, is already a National Monitoring Station (Station Code: RS18D030400) has been included in *Schedule B.2* of the RL. Q 4-5 2012
- **Downstream:** The location identified by Cork County Council is aSW-1d (grid ref. 184728E 102117N) located approximately 700m downstream of SW001, is already a National Monitoring Station (Station Code: RS18D030500) has been included in *Schedule B.2* of the RL. Q4 in 2012

## 6. Programme of Improvements

There are no planned improvements proposed by the applicant for Kilworth WWTP. An upgraded WWTP will be required to achieve ELVs of 0.85mg/l Orthophosphate as P, and 1.5mg/L Ammonia-Total as N from 31<sup>st</sup> December 2019.

## 7. Compliance with EU Directives

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

**Table 5. Compliance with EU Directives / Regulations**

Compliance with Directives/Regulations	Description and Conditions in RL
Urban Waste Water Treatment Directive [91/271/EEC]	Appropriate treatment was required by 31st December 2005. Blackwater (Munster) River, 3km downstream of SW001 is a nutrient sensitive water.  Conditions 5.1.4 and 5.1.5 require total Phosphorus loadings and total Nitrogen loadings, respectively, in the discharge to be reduced to the maximum practicable extent.
Water Framework Directive [2000/60/EC]	Maintain Good Status Blackwater (Munster) River, 3km downstream of SW001 is a salmonid water. Schedule A of RL sets ELV for SS to comply with S.I. No. 293/1988. No shellfish waters present.
EC Environmental Objectives (Surface Water) Regulations 2009 (S.I. No. 272 of 2009), as amended	Schedule A of RL sets ELVs to contribute towards achieving good status water quality standards.
EC Environmental Objectives (Freshwater Pearl Mussel) Regulations 2009 (S.I. No. 296 of 2009)	Condition 4 of RL requires Freshwater Pearl Mussel Munster Blackwater Sub Basin Management Plan to be reviewed annually and measures identified in the plan implemented by the licensee as part of AER.
Drinking Water Abstraction Regulations	No drinking water abstractions present.
Bathing Water Directive [2006/7/EC]	No bathing waters present
Dangerous Substances Directive [2006/11/EC]	Condition 4 requires screening for priority substances.

Environmental Impact Assessment Directive [85/337/EEC]	An EIS was not required for Kilworth WWTP.
Environmental Liability Directive	Condition 7.2 of RL

### **8. Habitats Directive [92/43/EEC] & Birds Directive [79/409/EEC]**

A screening for Appropriate Assessment was undertaken to assess, in view of best scientific knowledge and the conservation objectives of the site, if the activity, individually or in combination with other plans or projects is likely to have a significant effect on a European Site(s). In this context, particular attention was paid to the European sites at Blackwater River (Cork/Waterford) SAC (Site Code: 002170) and Blackwater Callows SPA (Site Code: 004094) and the Agency considered, for the reasons set out below, that the activity is not directly connected with or necessary to the management of the site as a European Site and that it can be excluded on the basis of objective scientific information, that the activity, individually or in combination with other plans or projects, will have a significant effect on a European site, and accordingly the Agency determined that an Appropriate Assessment of the activity is not required.

It has been determined that the activity does not have the potential for significant effects on a European Site due to the volume and quality of the effluent discharge.

### **9. Submissions**

No submissions were received in relation to this licence application.

### **10. Charges**

The RL sets an annual charge for the agglomeration at €5,530.68 and is reflective of the monitoring and enforcement regime being proposed for the agglomeration.

### **11. 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




---

Loretta Joyce  
Inspector  
Environmental Licensing Programme

**Figure 1.0. Kilworth and Environs Agglomeration D0334-01**

