

**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>	12 <sup>th</sup> August 2013
<b>RE:</b>	Application for a Waste Water Discharge Licence from Cork County Council for the <b>Ballygarvan</b> agglomeration, <b>Reg. No. D540-01.</b>

Application Details	
Schedule of discharge licensed:	Discharges from agglomerations with a population equivalent of 500 to 1000
Licence application received:	21/08/2012
Notices under Regulation 12 issued:	19/09/2012, 30/11/2012
Information under Regulation 12 received:	30/10/2012, 09/01/2013
Notices under Regulation 18(3)(b) issued:	16/05/2013
Information under Regulation 18(3)(b) received:	18/06/2013
Site notice check:	17/09/2012
Site visit:	14/05/2013
Submissions Received:	None

## 1. Agglomeration

This application relates to the Ballygarvan agglomeration in County Cork. The agglomeration had a population equivalent (p.e.) of 496 in 2012. The design capacity loading of 634 p.e. is used in the mass balance below. There are no identified sources of industrial waste water in the agglomeration.

The WWTP was taken in charge by Cork County Council on 1<sup>st</sup> January 2011 and has been upgraded nonetheless operational improvements are required. It consists of inlet screening, an anoxic tank, two aeration tanks, two clarifiers and a tertiary sand filter. There is chemical dosing for phosphorus removal.

## 2. Discharges to waters

### Primary Discharge

The primary discharge (SW-1) is the gravity outfall from the WWTP to the Owenboy River, adjacent to the WWTP. At 95%ile flow in the river (0.22m<sup>3</sup>/sec), there are approximately 158 dilutions available for the maximum design capacity waste water discharge (0.0014m<sup>3</sup>/sec). The 95%ile river flow was provided by the Office of Environmental Assessment. 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**

Parameter	BOD (mg/l)  5 samples	COD (mg/l)  5 samples	Suspended solids (mg/l)  6 samples	Ammonia (mg/l)  1 sample	Orthophosphate (mg/l)  1 sample
Average effluent	54	199	79	43	5
WWTP Design standards	10	-	10	3	1 (Total Phosphorus)

Secondary Discharges

There are no secondary waste water discharges from the agglomeration.

Storm water overflows

There are no storm water overflows from the agglomeration.

Emergency overflows

There are no emergency overflows from the agglomeration.

**3. Receiving waters and impact**

The Owenboy River forms part of 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	Owenboy River IE_SW_19_1968	
Relevant designations within 10km	Cork Harbour SPA Site Code 004030	6.7km d/s
Drinking water abstraction within 10 km d/s	None	
EPA monitoring stations & Biological quality rating (Q value)	U/s station RS19O010800 located 4.4km u/s (tributaries converge d/s of this station)  D/s station RS19O011000 located 130m d/s (tributaries converge u/s of this station)	Q3-4 in 2011         Q4 in 2005
WFD status	Moderate	2011
WFD Risk Category	1a, water body at	2008

	significant risk of failing objectives	
WFD Objective	Restore good status	2021 deadline
WFD protected areas	RPA drinking water groundwater	

Ambient water quality monitoring data for the Owenboy River provided by the Local Authority, based on only one sample, is presented in Table 3 below. The results show that BOD, orthophosphate and ammonia levels upstream and downstream of the primary discharge comply with the good status water quality standards specified in the European Communities Environmental Objectives (Surface Waters) Regulations 2009 as amended. Orthophosphate and ammonia levels deteriorate downstream of the primary discharge.

**Table 3. Water Quality in Owenboy River in 2012 (only 1 sample)**

Parameter	aSW1-u 2.68km u/s of SW001	aSW1-d 90m d/s of SW001	Water Quality Standards Note 1
<b>BOD</b>	1.2	<1.0	≤ 1.5 mg/l (mean)
<b>Orthophosphate (as P)</b>	0.005	0.008	≤ 0.035 mg/l (mean)
<b>Ammonia (as N)</b>	0.014	0.036	≤ 0.065 mg/l (mean)

Note 1: Good status under European Communities Environmental Objectives (Surface Waters) Regulations 2009 as amended;

Table 4 below summarises the mass balance calculations which show the contribution from the primary discharge on the receiving water at the design capacity loading of 634 p.e. The calculations use the 'notionally clean river' approach (a hypothetically clean stretch of river) provided by the Office of Environmental Assessment.

**Table 4. Mass Balance Calculations**

Parameter (mg/l)	Proposed ELVs for Primary discharge	Contribution from Primary discharge	Contribution from notionally clean background Note 1	Predicted Downstream concentration	Water Quality Standards Note 2
BOD	25	0.16	0.26	0.42	≤ 2.6
Orthophosphate (as P)	3	0.019	0.005	0.024	≤ 0.075
Ammonia (as N)	5	0.031	0.008	0.039	≤ 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.

The calculations show that the predicted downstream concentrations of BOD, Orthophosphate as P and Ammonia as N, based on the ELVs included in the RL, would comply with the good status standards in the Environmental Objectives Regulations 2009, as amended. The RL proposes that all ELVs apply from date of grant of licence. Plant operational improvement or upgrade will be required to meet these ELVs as the effluent is not achieving WWTP design standards.

The RL proposes an ELV of 25mg/l BOD. The average BOD in the effluent was 54mg/l in 2012. The WWTP is designed to achieve 10mg/l BOD. Conventional activated sludge plants can achieve 15 to 25 mg/l BOD.

The RL proposes an ELV of 3mg/l Orthophosphate. Orthophosphate as P in the effluent was 5mg/l in 2012 (1 sample), the design standard for Total Phosphorus is 1mg/l. Plants with chemical dosing for phosphorus removal, which is available at this WWTP, can achieve 0.5 to 0.8mg/l Orthophosphate as P.

The RL proposes an ELV of 5mg/l Ammonia as N. Ammonia in the effluent was 43 mg/l in 2012 (1 sample), the design standard for Ammonia as N is 3mg/l. There is an anoxic tank in the WWTP. Conventional activated sludge plants can achieve 2 to 5 mg/l Ammonia.

Ballygarvan WWTP is listed as a point pressure and causing risk in the Lower Lee Owenboy Water Management Unit Action Plan. The measure listed against Ballygarvan WWTP is that plant is required to ensure capacity of treatment plant is not exceeded. The plan notes that an extended deadline until 2021, to restore the Owenboy River to good status, is necessary because of nitrogen losses to surface water via groundwater.

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

I visited the Ballygarvan agglomeration on 14/05/2013 and met with a representative of Cork County Council. I visited the WWTP and observed the primary discharge point and receiving waters.

#### **Ambient Monitoring**

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

- Upstream: The location identified by Cork County Council is aSW-1u (grid ref. 166005E 062536N) is approximately 2.68km upstream of SW001 and is not suitable as tributaries converge with the Owenboy River downstream of this location.
- Downstream: The location provided by Cork County Council aSW-1d, (grid ref. 168429E 063232N) is approximately 90m downstream of SW001 and is not suitable as tributaries converge with the Owenboy River at this location.

There are no National monitoring stations suitably located, upstream or downstream of SW001, on the Owenboy River. Condition 4.19 of the RL requires the licensee to submit a proposal for suitable ambient upstream and downstream monitoring points to the Agency for agreement within three months of date of grant of licence.

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

The applicant intends to carry out future improvements including addition of an automatic tertiary filter and modifications to the existing control panel. Plant operational improvement or upgrade may be required to achieve ELVs of 25mg/l BOD, 125mg/l COD, 35mg/l SS, 3 mg/l Orthophosphate as P and 5mg/l Ammonia as N.

### 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 4. 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.
Water Framework Directive [2000/60/EC]	Restore Good status.
EC Environmental Objectives (Surface Water) Regulations 2009, S.I. No. 272 of 2009, as amended	Schedule A of RL sets ELVs to contribute towards good status water quality standards.
Drinking Water Abstraction Regulations	No drinking water abstractions d/s
EC Freshwater Fish Directive [2006/44/EC]	Not a designated salmonid river.
Bathing Water Directive [2006/7/EC]	No bathing waters present.
Shellfish Waters Directive [2006/113/EC]	No shellfish waters present.
Dangerous Substances Directive [2006/11/EC]	Condition 4 requires screening for priority substances.
Birds Directive [79/409/EEC] & Habitats Directive [92/43/EEC]	See Section 8 below. Cork Harbour SPA Site Code 004030 is 6.7km d/s
Environmental Impact Assessment Directive [85/337/EEC]	An EIS was not required for Ballygarvan WWTP.
Environmental Liability Directive [2004/35/CE]	Condition 7.2 of RL satisfies the requirements of the Directive.

### 8. Habitats Directive (92/43/EC) & 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 the European Sites.

The screening assessment undertaken concludes that a stage 2 Appropriate Assessment was required. The stage 2 Appropriate Assessment concluded that the discharge from the Ballygarvan WWTP is not having a significant impact because of the distance of the primary discharge from Cork Harbour SPA and the large dilution capacity of the Owenboy River.

The Ballygarvan WWTP is currently under loaded but the effluent is not complying with plant design standards (10 BOD: 10 SS). However, the Owenboy River does not seem to be impacted by the primary discharge, which is 6.7km upstream of the SAC boundary. There are approximately 158 dilutions available for the maximum design

capacity waste water discharge. The Owenboy River achieved 'Moderate' Status in 2011.

Schedule A of the RL sets ELVs to contribute towards good status water quality standards required by the Environmental Objectives Regulations 2009, as amended. Plant control and/or improvement will be required to achieve the proposed ELVs.

- 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 activity will not adversely affect the integrity, in terms of maintaining favourable conservation status of the qualifying interests of the European Sites, having regard to its conservation objectives.

## **9. Submissions**

No submissions were received in relation to this licence application.

## **10. 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.

## **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



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Loretta Joyce  
Inspector  
Environmental Licensing Programme

# Ballygarvan Agglomeration D0540-01

