

This memo has been approved to go to the Director  
 by the Senior Inspector.  
 Signed M. [Signature] Date: 12/18/13



**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> | 12 <sup>th</sup> August 2013  |
| <b>RE:</b>   | Application for a Waste Water Discharge Licence from Cork County Council for the <b>Castlelyons &amp; Environs</b> agglomeration, <b>Reg. No. D0449-01.</b> |

| Application Details                             |  |
|---|--|
| Schedule of discharge licensed:                 | Discharges from agglomerations with a population equivalent of 500 to 1000 |
| Licence application received:                   | 22/06/2009   |
| Notices under Regulation 18(3)(b) issued:       | 22/12/2009, 30/04/2010, 15/07/2010   |
| Information under Regulation 18(3)(b) received: | 01/06/2010, 30/07/2010, 04/07/2011   |
| Site notice check:                              | 10/07/2009   |
| Site visit:                                     | 14/05/2013   |
| Submissions Received:                           | None   |

**1. Agglomeration**

This application relates to the Castlelyons and Environs agglomeration in County Cork. The agglomeration had a population equivalent (p.e.) of 400 in 2011 and the design capacity of the WWTP is 1,200 p.e. The applicant has confirmed that the p.e. is not projected to exceed 690 p.e. by 2016. There are no identified sources of industrial waste water in the agglomeration.

The WWTP, commissioned in 2007-2008 consists of inlet works, screen brush with macerator, aeration tank, clarifier, chemical dosing for phosphorus removal and two storm water tanks.

**2. Discharges to waters**

*Primary Discharge*

The primary discharge (SW-1) is the gravity outfall from the WWTP to the Shanowennadrimina Stream, adjacent to the WWTP. At 95%ile flow in the river (0.05m<sup>3</sup>/sec), there are approximately 28 dilutions available for the projected normal waste water discharge (0.0018m<sup>3</sup>/sec). The projected normal waste water discharge

was calculated based on 225L per day per p.e. at a projected loading of 690p.e. 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 (average based on 6 samples)**

| Parameter             | BOD (mg/l) | COD (mg/l) | Suspended solids (mg/l) | Ammonia (mg/l) | Orthophosphate (mg/l) |
|-----------------------|------------|------------|-------------------------|----------------|-----------------------|
| Average effluent      | 5.5        | 49.8       | 20                      | -              | -                     |
| WWTP Design standards | 25         |            | 35                      |                |                       |

#### Secondary Discharges

There are no secondary waste water discharges from the agglomeration.

#### Storm water overflows

There is one storm water overflow (SWO) at the WWTP, post screening, and it discharges to the Shanowennadrimina Stream via the primary discharge. Condition 4 requires the storm water overflow to comply with the criteria for storm water overflows, as set out in the DoECLG 'Procedures and Criteria in Relation to Storm Water Overflows', 1995.

#### Emergency overflows

There is one emergency overflow in the agglomeration from Kill St Anne South Pumping Station. It discharges to the Shanowennadrimina Stream upstream of the primary discharge point. Condition 5.2 of the RL requires the licensee to assess all emergency overflows to determine the effectiveness of their operation.

### **3. Receiving waters and impact**

The Shanowennadrimina Stream discharges to the River Bride which 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                                 | Shanowennadrimina Stream<br>IE_SW_18_2221  | Flows into River Bride 1.3km d/s of the primary discharge                     |
| Relevant designations within 10km                             | River Bride 1.3km d/s is a Salmonid Water and SAC  | River Bride is part of the Blackwater (Cork/Waterford) SAC Site Code 002170   |
| Drinking water abstraction within 10 km d/s                   | Surface water abstraction on River Bride,<br>PA1-0500PUB1204   | 1.8km d/s   |
| EPA monitoring stations & Biological quality rating (Q value) | U/s station RS18S020100 located 1km u/s<br><br>D/s station RS18S020300<br><br>D/s station on River Bride RS18B050430 | Upstream Q4 in 1990<br><br>Downstream Q3 in 1990<br><br>Downstream Q4 in 2003 |
| WFD status  | Moderate   | 2009  |

|                     |  |                             |
|---------------------|--|-----------------------------|
| WFD Risk Category   | 1a, water body at significant risk of failing objectives.                    | 2008                        |
| WFD Objective       | Restore good status  | No exemption from 2015 date |
| WFD protected areas | RPA drinking water groundwater<br>River Bride, 1.3km /ds is a Salmonid Water |                             |

Ambient water quality monitoring data for the Shanowennadrimina Stream as part of the licence application is summarised in Table 3 below. The results show that Orthophosphate as P levels are elevated upstream and deteriorate downstream of the primary discharge and do not comply with the good status water quality standards specified in the European Communities Environmental Objectives (Surface Waters) Regulations 2009 as amended. However, the results are based on a limited number of samples, 3-6 samples in 2008 to 2009.

**Table 3. Water Quality in Shanowennadrimina Stream in 2008-2009 (3-6 samples)**

| Parameter                        | aSW-1u<br>1.1km u/s of<br>SW001 | aSW-1d<br>450m d/s of<br>SW001 | Water Quality<br>Standards<br>Note 1 |
|----------------------------------|---------------------------------|--------------------------------|--------------------------------------|
| <b>BOD</b>                       | 1.3                             | 1.3                            | ≤ 1.5 mg/l (mean)                    |
| <b>Orthophosphate<br/>(as P)</b> | <b>0.043</b>                    | <b>0.048</b>                   | ≤ 0.035 mg/l (mean)                  |
| <b>Ammonia<br/>(as N)</b>        | 0.042                           | 0.042                          | ≤ 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 a projected loading of 690 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<br>(mg/l)      | Proposed<br>ELVs for<br>Primary<br>discharge | Contribution<br>from<br>Primary<br>discharge | Contribution<br>from<br>notionally<br>clean<br>background<br>Note 1 | Predicted<br>Downstream<br>concentration | Water<br>Quality<br>Standards<br>Note 2 |
|--------------------------|--|--|---|--|---|
| BOD                      | 20   | 0.69   | 0.25  | 0.94                                     | ≤ 2.6                                   |
| Orthophosphate<br>(as P) | 1  | 0.035  | 0.005   | 0.040                                    | ≤ 0.075                                 |
| Ammonia<br>(as N)        | 2  | 0.069  | 0.008   | 0.077                                    | ≤ 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.

The RL proposes an ELV of 20mg/l BOD and the average BOD in the effluent was 5.5mg/l in 2012, indicating that this ELV can be achieved.

The RL proposes an ELV of 1mg/l Orthophosphate. Average Orthophosphate as P in the effluent was 4.11mg/l in 2006-2009 (4 samples) indicating that plant improvement is required to achieve an ELV of 1mg/l Orthophosphate as P. 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 2mg/l Ammonia as N. Average Ammonia in the effluent was 2.4mg/l in 2008-2009 (4 samples) indicating that plant improvement is required to achieve an ELV of 2mg/l Ammonia as N. There is no anoxic zone/tank in the WWTP. Conventional activated sludge plants can achieve 2 to 5 mg/l Ammonia.

Castlelyons WWTP is listed as a point pressure in the Blackwater Bride Water Management Unit Action Plan but there were no identified risks associated with it.

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

I visited Castlelyons 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.

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

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

- Upstream: The location identified by Cork County Council is aSW-1u (grid ref. 183503E 093556N) is approximately 1.1km upstream of SW001. There is a National monitoring station approximately 1km upstream of SW001 (Station Code: RS18S020100) and this has been included in *Schedule B.2* of the RL
- Downstream: The location provided by Cork County Council aSW-1d, (grid ref. 184141E 092247N) is approximately 450m downstream of SW001. There is a National monitoring station approximately 550m downstream of SW001 (Station Code: RS18S020300) and this has been included in *Schedule B.2* of the RL

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

There are no planned improvements proposed by the applicant for Castlelyons WWTP. Plant operational improvement or upgrade may be required to achieve ELVs of 1mg/l Orthophosphate as P and 2mg/l Ammonia as N.

#### **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**

| <b>Compliance with Directives/Regulations</b>  | <b>Description and Conditions in RL</b>  |
|--|--|
| 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   | Surface water abstraction on River Bride, PA1-0500PUB1204, 1.8km d/s.<br>Condition 4 requires a risk assessment for protection of drinking water abstraction points to be carried out. |
| EC Freshwater Fish Directive [2006/44/EC]  | Not a salmonid water.  |
| 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.<br>Blackwater (Cork/Waterford) SAC Site Code 002170 is 1.3km d/s  |
| Environmental Impact Assessment Directive [85/337/EEC]   | An EIS was not required for Castlelyons 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 no significant impacts on the European Site, Blackwater (Cork/Waterford) SAC are predicted and a stage 2 Appropriate Assessment was not required.

The Castlelyons WWTP is currently under loaded and there are approximately 28 dilutions available for the projected normal waste water discharge. The most recent biological Q value downstream of the WWTP is Q4 in 2003. Qualifying interests which have the highest ecological sensitivity (Crayfish and Pearl Mussel) are not found in this sub-catchment. The Shanowennadrimina Stream has Moderate Status. The River Bride, 1.3km downstream has improved from Moderate status in 2009 to Good 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 improvement may 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 € 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



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Loretta Joyce  
Inspector  
Environmental Licensing Programme

# Castlelyons Agglomeration D0449-01

