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 Signed: N Kealey Date: 11/07/13



OFFICE OF THE SENIOR INSPECTOR,
 LICENSING & RESOURCE USE.

INSPECTORS REPORT ON A WASTE WATER DISCHARGE LICENCE APPLICATION

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| To: | Dara Lynott, Director |
| From: | Loretta Joyce Environmental Licensing Programme |
| Date: | 11 July 2013 |
| RE: | Application for a Waste Water Discharge Licence from Cork County Council for the Conna and Environs agglomeration, Reg. No. D0439-01. |

| 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: | 31/05/2010, 15/07/2010 |
| Information under Regulation 18(3)(b) received: | 30/06/2010, 27/07/2010, 04/07/2011 |
| Site notice check: | 10/07/2009 |
| Site visit: | 14/05/2013 |
| Submissions Received: | None |

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1. Agglomeration

This application relates to the Conna and Environs agglomeration in County Cork. The agglomeration had a population equivalent (p.e.) of 510 in 2011 and the design capacity of the WWTP is 800 p.e. 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 WWTP consists of inlet works with automatic screening and a Rotating Biological Contactor (RBC) package plant designed to produce 25:35 BOD: Suspended Solids. The package plant consists of primary settlement, aerobic biofilm treatment and final settlement. There is no chemical dosing for phosphorus removal. An existing septic tank was refurbished and is used as a storm water holding tank.

2. Discharges to waters

Primary Discharge

The primary discharge (SW-1) is the gravity outfall from the WWTP to the River Bride, adjacent to the WWTP. At 95%ile flow in the river (0.81 m³/sec), there are

approximately 583 dilutions available for the projected normal waste water discharge (0.001389m³/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 (average based on 8 samples)

| Parameter | BOD (mg/l) | COD (mg/l) | Suspended solids (mg/l) | Ammonia (mg/l) | Orthophosphate (mg/l) |
|-----------------------|------------|------------|-------------------------|----------------|-----------------------|
| Average effluent | 37 | 96 | 36 | - | - |
| 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 River Bride adjacent to 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 are no emergency overflows in the agglomeration.

3. Receiving waters and impact

The River Bride 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 | River Bride IE_SW_18_2778 | |
| Relevant designations within 10km | River Bride is a Salmonid Water Discharges into a SAC | River Bride is part of the Blackwater (Cork/Waterford) SAC Site Code 002170 |
| Drinking water abstraction within 10 km d/s | None | |
| EPA monitoring stations & Biological quality rating (Q value) | U/s station RS18B050600 located 110m u/s D/s station RS18B050700 located 5.2km d/s (tributaries join u/s of this station) | Upstream Q4 in 2012 Downstream Q4 in 2003 |
| WFD status | Good | 2011 Moderate in 2009 |
| WFD Risk Category | 1a, water body at significant risk of failing objectives | 2008 |
| WFD Objective | Protect good status | No exemption from 2015 date |

| | | |
|---------------------|--|--|
| WFD protected areas | River Bride is a Salmonid Water RPA Drinking Water Groundwater | |
|---------------------|--|--|

Ambient water quality monitoring data for the River Bride provided by the Local Authority in accordance with the Water Framework Directive and as part of the licence application is summarised in Table 3 below. The results show that Orthophosphate and Ammonia levels 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, 4 upstream in 2012 and 4 downstream in 2008 to 2009.

Table 3. Water Quality in River Bride in 2012 (4 sample)

| Parameter | RS18B050600 110m u/s of SW001 (4 samples in 2012) | aSW-1d 500m d/s of SW001 (4 samples in 2008-2009) | Water Quality Standards Note 1 |
|----------------------------------|---|---|--------------------------------------|
| BOD | 1.07 | 1.25 | ≤ 1.5 mg/l (mean) |
| Orthophosphate (as P) | 0.029 | 0.083 | ≤ 0.035 mg/l (mean) |
| Ammonia (as N) | 0.058 | 0.093 | ≤ 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 612 p.e. (510 p.e. plus 20%). 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 | 0.04 | 0.26 | 0.30 | ≤ 2.6 |
| Orthophosphate (as P) | 3 | 0.005 | 0.005 | 0.010 | ≤ 0.075 |
| Ammonia (as N) | 5 | 0.009 | 0.008 | 0.017 | ≤ 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 would comply with the good status standards in the Environmental Objectives Regulations 2009, as amended.

The RL proposes an ELV of 25mg/l BOD which is the design standard for the WWTP. Conna WWTP is listed as a point pressure in the Blackwater Bride Water Management Unit Action Plan with 'risks related to non-compliant effluent standard where sufficient capacity is available'. This relates to occasional high BOD in the effluent even though the WWTP has sufficient capacity. While the average BOD in the effluent was 37mg/l in 2012, it ranged from 18mg/l to 83mg/l. A new inlet sump has been added to deal with occasional spikes in BOD loading. Further plant control and/or improvement may be required to achieve an ELV of 25mg/l BOD.

The RL proposes an ELV of 3mg/l Orthophosphate. Average Orthophosphate as P in the effluent was 2.8mg/l in 2006-2009 (6 samples) indicating that an ELV of 3mg/l Orthophosphate as P can be achieved. There is no chemical dosing for phosphorus removal at the WWTP.

The RL proposes an ELV of 5mg/l Ammonia as N. Average Ammonia in the effluent was 7.8mg/l in 2006-2009 (6 samples) indicating that plant improvement is required to achieve an ELV of 5mg/l as N. There is no anoxic zone/tank in the WWTP. Conventional activated sludge plants can achieve 2 to 5 mg/l Ammonia.

As the River Bride is a Salmonid Water, the RL proposes an ELV of 25mg/l Suspended Solids (SS). The Water Quality Standard for SS, in the European Communities (Quality of Salmonid Waters) Regulations, S.I. No. 293/1988 is 25mg/l. The average SS in the effluent was 36mg/l in 2012 indicating that plant improvement may be required in order to meet an ELV of 25mg/l SS.

All ELVs apply from date of grant of licence as they are achievable in RBC plants.

4. Site Visit

I visited Conna and Environs 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 River Bride for a number of specified parameters.

- Upstream: The location identified by Cork County Council is aSW-1u (grid ref. 192503E 093447N) is approximately 150m upstream of SW001. There is a National monitoring station approximately 110m upstream of SW001 (Station Code: RS18B050600) and this has been included in *Schedule B.2* of the RL
- Downstream: The location provided by Cork County Council aSW-1d, (grid ref. 193065E 093633N) is approximately 500m downstream of SW001 and this has been included in the RL as a new National Monitoring station (Station Code: RS18B050620).

6. Programme of Improvements

There are no planned improvements proposed by the applicant for Conna WWTP. Plant improvement may be required to achieve ELVs of 25mg/l BOD, 3mg/l Orthophosphate as P, 5mg/l Ammonia as N and 25mg/l SS.

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. |
| Water Framework Directive [2000/60/EC] | Maintain 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 present |
| EC Freshwater Fish Directive [2006/44/EC] | Salmonid water. Schedule A of RL sets ELV for SS to comply with S.I. No. 293/1988. |
| 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. Discharges into Blackwater (Cork/Waterford) SAC Site Code 002170 |
| Environmental Impact Assessment Directive [85/337/EEC] | An EIS was not required for Conna 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 Conna WWTP is currently underloaded and there are approximately 583 dilutions available for the projected normal waste water discharge. There is no deterioration in the biological Q value downstream of the WWTP. Biological stations upstream and downstream report Q4 indicating Good status. The River Bride 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.

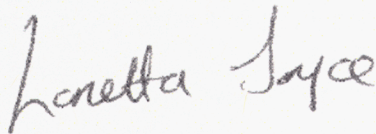
10. Charges

The RL sets an annual charge for the agglomeration at € 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



Loretta Joyce
Inspector
Environmental Licensing Programme

Conna and Environs Agglomeration D0439-01

