OFFICE OF CLIMATE, LICENSING & RESOURCE USE.

INSPECTORS REPORT ON A WASTE WATER DISCHARGE LICENCE APPLICATION

To:	Dara Lynott, Director	
From:	Loretta Joyce	Environmental Licensing Programme
Date:	21st May 2014	
RE:	Application for a Waste Water Discharge Licence from Irish Water for the **Bweeng & Environs** agglomeration, Co. Cork, Reg. No. D0438-01.	

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 Reg. 18(3)(b) issued:	31/05/2010, 15/07/2010
Information under Reg.18(3)(b) received:	30/06/2010, 27/07/2010, 30/07/2010, 04/07/2011
Additional Information received:	10/01/2014, 01/04/2014
Site notice check:	15/07/2009
Site visit:	16/10/2013
Submissions Received:	None

1. Agglomeration

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 The application was originally made by Cork County Council and subsequently transferred to Irish Water on 1st January 2014 under the Water Services (No. 2) Act 2013.

The Bweeng and Environs agglomeration had a population equivalent (p.e.) of 500 in 2012 and the design capacity of the waste water treatment plant (WWTP) is 500p.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 agglomeration is served by a secondary level WWTP, commissioned in 2007. The WWTP consists of automatic screening, balance tank, aeration tank, Sequencing Batch Reactor (SBR) and a drum filter. There is chemical dosing for phosphorus removal. There is a flow meter and a 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 a tributary of the Clyda River, 50m south of the WWTP. The Clyda River is located 580m south of SW001. The current receiving water has limited flow and therefore limited capacity to receive the effluent discharge. The RL, in the Specified Improvement Programme, requires that the primary discharge outfall is relocated to the Clyda River by 22nd December 2015.

At 95%ile flow in the Clyda River (0.03 m^3/sec), there are approximately 9.8 dilutions available for the projected normal waste water discharge (0.0031 m^3/day). 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. The results show that the WWTP performs to a good standard.

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	7	28	10	-	-
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 (SW002), post screening which discharges to a tributary of the Clyda River via the primary discharge.

Emergency overflows

There are no emergency overflows from the agglomeration.

3. Receiving waters and impact

The receiving water is a tributary of the Clyda 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	Tributary of Clyda River IE_SW_18_1922	Converges with the Clyda River, 500m downstream
Relevant designations within 10km	None.	
Drinking water abstraction within 10 km d/s	None.	
EPA monitoring stations & Biological quality rating (Q value)	U/s station RS18C020030 1.3km u/s of the confluence of the tributary and Clyda River D/s station RS18C020050 1.2km d/s of the	No Recent Q value Q4-5, 2006

	confluence of the tributary and Clyda River D/s station RS18C020070 5.2km d/s of the confluence of the tributary and Clyda River	Q4-5, 2012
WFD status	High	2007-2009
WFD Risk Category	2a, water body probably not at significant risk of failing objectives.	2008
WFD Objective	Protect good status	2015
WFD protected areas	RPA drinking water groundwater	

Ambient water quality monitoring data for the Clyda River supplied by the applicant in the licence application is summarised in Table 3 below. The results, based on a limited number of samples, show that Orthophosphate levels ameliorate downstream of the primary discharge but do not comply with the good status water quality standards in the Environmental Objectives Regulations 2009, as amended.

Table 3. Water Quality in the Clyda River in 2009 (average based on only 4 samples)

Parameter (mg/l)	**aSW-1u, 1.3km u/s of confluence of tributary and River Clyda**	**aSW-1d, 1.2km d/s of confluence of tributary and River Clyda**	**Water Quality Standards** [Note 1]
BOD	**2**	1.25	≤ 1.5 mg/l (mean)
Orthophosphate (as P)	**0.16**	**0.04**	≤ 0.035 mg/l (mean)
Ammonia (as N)	<0.05	0.037	≤ 0.065 mg/l (mean)

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

The existing receiving water, a tributary of the Clyda River, has very limited capacity to receive the primary discharge, therefore the calculations below are based on discharge to the Clyda River. The RL, in the Specified Improvement Programme, requires that the primary discharge outfall is relocated to the Clyda River by 22nd December 2015. Table 4 below summarises the mass balance calculations which show the impact of the primary discharge on the Clyda River water at a projected loading of 600 p.e. (500 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.

Given that the Clyda River is assigned high status based on monitoring at station RS18C020070 which is 5.2km downstream of the confluence between the tributary and the Clyda River, the discharge from Bweeng WWTP does not appear to be affecting the receiving water. Good, rather than high, status standards in the Environmental Objectives Regulations 2009, as amended, were used in the mass balance calculations below.

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	10	0.92	0.24	1.16	≤ 2.6
Orthophosphate (as P)	0.5 (from 2015)	0.05	0.005	0.05	≤ 0.075
Ammonia (as N)	1 (from 2015)	0.092	0.007	0.099	≤ 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 from 22nd December 2015, would comply with the good status standards in the Environmental Objectives Regulations 2009, as amended. However, WWTP upgrade is required to meet these ELVs.

The RL proposes an ELV of 10mg/l BOD from date of grant of licence. The average BOD in the effluent was 7mg/l in 2012, indicating that this ELV can be achieved.

Interim ELVs for Orthophosphate as P and Ammonia as N have not been proposed due to the short timeframe from date of grant of licence until 22nd December 2015, the date when the receiving water is to achieve the Water Framework Directive objective.

The RL proposes an ELV of 0.5mg/l Orthophosphate from 22nd December 2015. Average Orthophosphate as P in the effluent was 1.23mg/l in 2009 (four samples), indicating that plant improvement is required to achieve this ELV. 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 1mg/l Ammonia as N. Average Ammonia in the effluent was 0.65mg/l in 2009 (four samples), indicating that this ELV can be achieved. The SBR has an anoxic phase. Nitrogen removal filters can achieve 0.5 to 2 mg/l Ammonia.

Bweeng WWTP is identified as a point pressure in the Blackwater Water Management Unit Action with risks related to 'insufficient existing capacity', 'insufficient future assimilative capacity (BOD)' and 'discharge to a protected area'.

4. Site Visit

I visited the Bweeng & Environs agglomeration on 16/10/2013 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 Clyda River for a number of specified parameters. Ambient monitoring of the tributary of the Clyda River has not been specified due to the short timeframe from date of grant of licence until 22nd December 2015.

- Upstream: The location identified by Cork County Council is aSW-1u (grid ref. 149181E 087731N) located approximately 1.3km upstream of the confluence of the tributary and the Clyda River, is a National Monitoring Station (Station Code: RS18C020030) and has been included in *Schedule B.2* of the RL.

  Downstream: The location identified by Cork County Council is aSW-1d (grid ref. 151105E 086872N) approximately 1.2km downstream of the confluence of the tributary and the Clyda River, is a National Monitoring Station (Station Code: RS18C020050) and has been included in *Schedule B.2* of the RL.

6. Programme of Improvements

There are no planned improvements proposed by the applicant for Bweeng WWTP. An upgraded WWTP will be required to achieve ELVs of 0.5mg/l Orthophosphate and 1mg/L Ammonia, from 22nd December 2015. The RL, in the Specified Improvement Programme, requires that the primary discharge outfall is relocated by approximately 580m, to the Clyda River by 22nd December 2015.

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]	Protect High Status. Not a salmonid water. 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
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 Bweeng WWTP.
Environmental Liability Directive	Condition 7.2 of RL

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

The Blackwater River (Cork/Waterford) SAC (Site Code: 0002170) is located 12km downstream of SW001.

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 Site at Blackwater River (Cork/Waterford) SAC (Site Code: 002170) 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 any European Site due to the distance from the points of discharge to the identified European Site and the limited volume of the 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 €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

Figure 1.0. Bweeng & Environs Agglomeration D0438-01