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 Signed: *Suzanne Smyth* Date: 27/06/2013

RESOURCE USE.

INSPECTORS REPORT ON A WASTE WATER DISCHARGE LICENCE APPLICATION

To:	Dara Lynott, Director	
From:	Suzanne Wylde, Yvonne English, Gavin Clabby, Eimer Godsil, Ciara Maxwell & Simon Hussey	Environmental Licensing Programme
Date:	27 th June 2013	
RE:	Application for a Waste Water Discharge Licence from Cork County Council, for the agglomeration named Ballyclough , Reg. No. D0441-01.	

Application Details

Schedule of discharge licensed:	Discharges from agglomerations with a population equivalent of 500 to 1,000.
Licence application received:	22 June 2009
Notices under Regulation 18(3)(b) issued:	30 April 2010; 15 July 2010; 11 April 2013, 18 April 2013
Information under Regulation 18(3)(b) received:	1 June 2010; 4 July 2011; 22 April 2013, 25 April 2013
Notices under Regulation 20(1) issued:	27 May 2013
Information under Regulation 20(1) received:	27 May 2013
Site notice check:	17 July 2009
Site visit:	27 March 2013
Submission(s) Received:	None

1. Agglomeration

This application relates to the agglomeration named Ballyclough in Cork (See map in Appendix 1).

The WWTP was designed to cater for a population equivalent (p.e.) of 800, with an existing p.e. of 635 served by the wastewater works. The influent to the wastewater treatment plant is primarily domestic wastewater. The sewage system in Ballyclough is a partially combined system.

The WWTP provides secondary treatment. The treatment works consists of inlet works including macerator and grit trap, a forward feeding pump sump and sequencing batch reactor.

2. Discharges to waters

The final treated effluent discharges through the primary discharge point (SW001) to the Finnow Stream. The normal flow from the WWTP is 176m³/day, while the maximum discharge from the WWTP is 530m³/day. The final treated effluent quality from the WWTP in 2011 was within the limits prescribed in the Urban Wastewater Treatment Regulations (2001, as amended) (BOD 25mg/l, COD 125mg/l and suspended solids 35mg/l). The average effluent monitoring results for 2011 for BOD, COD and suspended solids were 3mg/l, 22mg/l and 7mg/l, respectively. The population equivalent of the agglomeration is below the 2,000 p.e. threshold at which the ELVs specified in Part 1 of the second schedule of the Urban Wastewater Treatment Regulations (2001, as amended) apply.

For agglomerations under this threshold, "*appropriate treatment*" is required. The term appropriate treatment is defined in the Regulations in terms of the level of treatment necessary to protect water quality. It is considered that the treatment currently provided in this agglomeration is appropriate.

There are no secondary discharge points within the agglomeration.

There are two pump stations within the agglomeration, however neither of these have emergency overflows associated with them.

There are no stormwater overflows within the existing network.

Schedule A: Discharges & Discharge Monitoring of the recommended licence (RL) specifies the Emission Limit Values (ELVs) to which the discharge(s) from the Ballyclough agglomeration must conform. The ELVs are aimed at providing a high degree of protection to the receiving water body. Monitoring of the discharges will take place as per this schedule of the RL.

3. Receiving waters and impact

The following table summarises the main considerations in relation to the Finnow Stream downstream of the primary discharge.

Table 1: Receiving waters

Characteristic	Classification	Comment
Receiving water name and type	Finnow Stream	(WFD Code: IE_SW_18_785)
Applicable Regulations	UWWT Regulations ^{Note 1}	In compliance
	Surface Water Regulations ^{Note 2}	In compliance
Designations	Blackwater River Cork/Waterford SAC	Site code: 002170
EPA monitoring stations	East Bridge, Ballyclough (EPA RS Code: RS18B080100)	300 metres u/s of SW001 on Finnow Stream
	Bridge u/s Blackwater confluence (EPA RS Code: RS18B080500)	4.5 km d/s of SW001 on Finnow Stream
Biological quality rating (Q value)	Q3 (slightly polluted) - 2012	U/s of WWTP on Finnow Stream
	Q3 (slightly polluted) - 2012	D/s of WWTP on Finnow Stream
WFD status	Poor (2008)	Restore by 2021
WFD Risk Category	1a (2008)	At risk of not achieving good status

Note 1: Urban Wastewater Treatment Regulations, as amended, 2001.

Note 2: European Communities Environmental Objectives (Surface Water) Regulations 2009 (as amended).

The primary discharge point (SW001) is located 4.5km upstream of the Blackwater River (Cork/Waterford) SAC (site code: 002170), which has been designated partly on the basis that the fresh water pearl mussel, *Margaritifera margaritifera* is a qualifying interest for this site. The first schedule of the *European Communities Environmental Objectives (Freshwater Pearl Mussel) Regulations S.I No. 296 of 2009 (Pearl Mussel Regulations 2009)* lists the 27 designated Freshwater Pearl Mussel sites. The Blackwater (Munster) River is one of these designated freshwater pearl mussel sites.

The Blackwater Water Management Unit Action Plan (WMUAP) identifies the WWTP in Ballyclough as a point pressure on the Blackwater (Munster) catchment.

The Office of Environmental Assessment (OEA) has carried out upstream and downstream ambient monitoring for a number of years. The monitoring results indicate that the receiving water is in compliance (high status standards) with the European Communities Environmental Objectives (Surface Water) Regulations 2009, (as amended).

The Blackwater (Munster) River, of which the Finnow Stream is a tributary, is required to support the freshwater pearl mussel (*Margaritifera margaritifera*) both under the European Communities Environmental Objectives (Freshwater Pearl Mussel) Regulations (2009) and the '*Freshwater Pearl Mussel Munster Blackwater Sub-Basin Management Plan*'. The proposed emission limit values (ELVs) for the RL,

as drafted, are therefore based on the high status standards as laid down in the European Communities Environmental Objectives (Surface Water) Regulations (2009). The high status limits (95%ile) for BOD, ammonia and orthophosphate are 2.2mg/l, 0.090mg/l and 0.045mg/l, respectively.

Table 2: Mass Balance Calculations.

Parameter	Background Concentration (mg/l)	Proposed ELVs for discharge from SW001 (mg/l)	Contribution from primary discharge (mg/l)	Predicted downstream concentration (mg/l)	Relevant standard (mg/l)
BOD	0.5875	25	0.7125	1.3	2.2 ^{Note 1}
Orthophosphate	0.0193	0.5	0.0228	0.0333	0.045 ^{Note 1}
Total Ammonia	0.03	1	0.0576	0.0583	0.090 ^{Note 1}

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

Mass Balance calculations were carried out using the monitoring information provided by OEA, i.e. Aquarius. The 95%ile flow in the river at the primary discharge point is 0.055m³/s. The mass balance calculations are based on the 95%ile flow in the receiving water, the mean background concentration of each parameter in the receiving water, the normal effluent discharge rate and the maximum concentration of the parameter in the effluent (Table 2).

The mass balance calculations indicate that the predicted downstream concentrations for BOD, orthophosphate and ammonia are within the high status standards set in the European Communities Environmental Objectives (Surface Water) Regulations 2009, (as amended).

The limit of 0.045mg/l for orthophosphate, 0.090mg/l for ammonia and 2.2mg/l of BOD in the receiving water are statutory limits set in the European Communities Environmental Objectives (Surface Water) Regulations 2009, (as amended), to achieve high status in the surface water. An emission limit value of 0.5mg/l is recommended for orthophosphate, 1mg/l for ammonia and 25mg/l for BOD in the RL. The limits are set based on the mass balance calculations. The licensee may have to undertake operational process modifications to ensure that these emission limit values are achieved.

In addition, Cork County Council is required to install chemical dosing for phosphorous removal in order to achieve the emission limit value of 0.5mg/l for orthophosphate. Following discussions with the Department of Environment, Community and Local Government (DECLG) Inspector it is anticipated that the chemical dosing will be installed within six months. Chemical dosing for P removal is capable of achieving limits of 0.5-0.8mg/l orthophosphate. Based on this information the emission limit values for orthophosphate and ammonia in the RL are achievable. The RL also stipulates an ELV of 25mg/l for suspended solids.

Condition 4.20 of the RD, as drafted, requires the licensee to review the finalised version of the Freshwater Pearl Mussel Munster Blackwater Sub Basin Management Plan for the Blackwater (Munster) Catchment on an annual basis, implement applicable measures and submit a report of the measures implemented as part of the AER.

4. Ambient Monitoring

Schedule B.2: Receiving Water Monitoring of the RL specifies the parameters, analysis method and frequency for which ambient monitoring of the primary discharge shall be carried out. The requirements for ambient monitoring in *Schedule B.2: Receiving Water Monitoring* are sufficient to ensure that there will be no deterioration in the status of the receiving water as a result of the discharge.

5. Combined Approach

The Wastewater Discharge (Authorisation) Regulations (2007, as amended) specify that a 'combined approach' in relation to licensing of waste water works must be taken, whereby the emission limits for the discharge are established on the basis of the stricter of either or both, the limits and controls required under the Urban Waste Water Treatment Regulations (2001, as amended) and the limits determined under statute or Directive for the purpose of achieving the environmental objectives established for surface waters, groundwater or protected areas for the water body into which the discharge is made. The RL as drafted gives effect to the principle of the Combined Approach as defined in Wastewater Discharge (Authorisation) Regulations (2007, as amended).

6. Programme of Improvements

The WWTP in Ballyclough provides secondary treatment for wastewater from the Ballyclough agglomeration. *Schedule C.1: Specified Improvement Programme* requires the installation of chemical dosing for phosphorus removal at the WWTP by 31st December 2013. Condition 5.1 of the RL requires the licensee to prepare and submit to the Agency a programme of infrastructural improvements to maximise the effectiveness and efficiency of the waste water works. The conditions and emission limit values specified in the RL will ensure no deterioration in the quality of the receiving waters as a result of the discharge.

7. Compliance with EU Directives

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

Drinking Water Abstraction Regulations

There are no drinking water abstractions downstream of the discharge from the Ballyclough WWTP.

Sensitive Waters

The Finnow Stream is not designated as a sensitive water under the Urban Wastewater Treatment Regulations.

Water Framework Directive [2000/60/EC]

The RL, as drafted, transposes the requirements of the Water Framework Directive. In particular, *Condition 3: Discharges* provides conditions regulating discharges to waters. *Schedule A: Discharges & Discharge Monitoring* specifies limit values for those substances contained within the waste water discharge. Those limits specified in the RL are determined with the aim of achieving good water quality status by 2015.

European Communities Environmental Objectives (Surface Water) Regulations 2009, (as amended)

The ambient monitoring data supplied by OEA demonstrates compliance in the receiving water with the European Communities Environmental Objectives (Surface Water) Regulations 2009, (as amended). The RL, as drafted, includes emission limit values to ensure that the treatment provided by the plant is sufficient to meet the requirements of the European Communities Environmental Objectives (Surface Water) Regulations 2009, (as amended).

Urban Waste Water Treatment Directive [91/271/EEC]

Ballyclough WWTP complies with the requirements of the Urban Waste Water Treatment Directive, in terms of the level of treatment provided. The RL, as drafted, has regard to the requirements of the Urban Waste Water Treatment Directive.

Dangerous Substances Directive [2006/11/EC]

The applicant has provided once-off sampling results for 18 of the 19 dangerous substances in the primary discharge for the purposes of the licence application. The measured concentrations are not considered significant. Condition 4.21 of the RL, as drafted, requires the licensee to identify the priority substances for monitoring by undertaking a risk-based assessment in accordance with "*Guidance on the Screening for Priority Substances for Waste Water Discharge Licences*" issued by the Agency. Monitoring for any identified priority substance shall be carried out as required by the Agency.

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

Ballyclough WWTP discharges to the Finnow Stream. The Finnow outfalls to the Blackwater (Munster) River, part of the Blackwater River (Cork/Waterford) SAC¹ (Site code: 002170), approximately 4.5 km downstream of the discharge from Ballyclough WWTP. The SAC is protected for priority habitats listed under Annex 1 of the *Habitats Directive*. The qualifying habitats are: Estuaries; Mudflats and sandflats not covered by seawater at low tide; Perennial vegetation of stony banks; *Salicornia* and other annuals colonizing mud and sand; Atlantic salt meadows; Mediterranean salt meadows; Water courses of plain to montane levels with the *Ranunculus fluitantis* and *Callitriche-Batrachion* vegetation; Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles; *Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* and **Taxus baccata* woods of the British Isles².

It is also selected for protection of species listed under Annex II of the *Habitats Directive*. The qualifying species of the SAC are: Freshwater Pearl Mussel; White-clawed Crayfish; Sea Lamprey; Brook Lamprey; River Lamprey; Twaite Shad; Atlantic Salmon; Otter and the Killarney Fern.

This SAC overlaps with a number of SPAs³, designated under the *Birds Directive*: Blackwater Estuary SPA (004028), Blackwater Callows SPA (004094) and Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA (004161). It is also adjacent to Killarney National Park, Macgillycuddy's Reeks and Caragh River Catchment SAC (000365).

¹ SAC: Special Area of Conservation designated under the *Habitats Directive*, Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora.

² * indicates a priority habitat under the *Habitats Directive*.

³ SPA: Special Protection Area designated under the *Birds Directive*, Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds.

A screening (Stage 1) for Appropriate Assessment of the discharge from the agglomeration was undertaken to assess, in view of best scientific knowledge and the conservation objectives of the site, if the discharge, individually or in combination with other plans or projects, is likely to have a significant effect on the European Sites.

Ballyclough WWTP is listed on the Freshwater Pearl Mussel Munster Blackwater Sub-Basin Management Plan (Second Draft) as a plant potentially having an adverse effect on the pearl mussel – *“The Pearl Mussel population is located downstream of this plant. It requires investigation with the aim to reduce overall nutrient, organic and sediment loads in the Munster Blackwater catchment”*.

Following screening it was determined that an Appropriate Assessment was required to assess the impact of the discharge on the Blackwater River (Cork/Waterford) SAC and the applicant submitted a Natura Impact Statement, as defined in Regulation 2(1) of the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. No. 477 of 2011).

The Finnow Stream enters the Blackwater River upstream of known pearl mussel populations located upstream and downstream of Mallow town. The Appropriate Assessment (AA) assessed the impact of the discharge from Ballyclough WWTP on the Blackwater River (Cork/Waterford) SAC, in combination with other pressures, including the discharge from Cecilstown WWTP⁴, which discharges treated effluent to the Finnow Stream approximately 2.5 km upstream of the Ballyclough discharge.

The pearl mussel is highly sensitive to water and (riverbed) substrate quality. An elevation in suspended solids from effluent discharges also poses a risk to salmon and lamprey recruitment where settlement on spawning gravels and /or redds may occur. Nutrient enrichment would lead to accelerated algal and plant growth with implications for pearl mussel, lamprey and salmon stocks. A reduction in salmonids as prey species may negatively affect otter populations in the catchment. EPA monitoring of the Finnow (or Ballyclogh) Stream has shown poor status (Q3) at two downstream locations sampled in 1990 (RS18B080400 and RS18B080300). Increases in orthophosphate levels in the Finnow Stream are evident downstream of Ballyclough WWTP and cumulative influences such as the discharge from Cecilstown WWTP may exacerbate these negative effects.

The AA concluded that no significant impacts are likely on the Blackwater River (Cork/Waterford) SAC from the Ballyclough WWTP subject to the commencement of phosphorous removal at the WWTP and the conditions of the licence. The Water Services Authority proposes to install chemical dosing within a period of six months to avoid impacts from the discharge on the European Site. *Schedule C.1: Specified Improvement Programme* requires the commencement of chemical dosing for phosphorus removal at the WWTP by 31st December 2013. An emission limit value of 25 mg/l has been set for Suspended Solids in the Recommended Licence to provide protection for the relevant qualifying species. The limits set for BOD, orthophosphate and total ammonia will assist in the achievement of High Status for the water body, in accordance with the Water Framework Directive.

The Appropriate Assessment demonstrates that the discharge will not adversely affect the integrity of the European Site subject to the mitigation measures of phosphorus removal by means of chemical dosing and adherence to appropriate emission limit values in the discharge. 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 discharge will not adversely affect the integrity, in terms of maintaining favourable conservation status of the qualifying interests of the European Site, having regard to its conservation objectives.

⁴ Cecilstown and Environs Agglomeration, Certificate of Authorisation A0319-01, granted 22/06/2011.

Environmental Impact Assessment Directive [85/337/EEC]

An EIS was not required and should one be required as part of any programme of improvements, it will be dealt with as per Condition 1.8 of the RL.

Environmental Liabilities Directive [2004/35/EC]

Condition 7.2 of the RL satisfies the requirements of the Environmental Liabilities Directive in particular those requirements outlined in Article 3(1) and Annex II of 2004/35/EC.

8. Cross Office Liaison

The Aquarius database was used to access receiving water monitoring data compiled by OEA.

Advice and guidance issued by the Technical Working Group (TWG) was followed in my assessment of this application. Advice and guidance issued by the TWG is prepared through a detailed cross-office co-operative process, with the concerns of all sides taken into account. The Board of the Agency has endorsed the advice and guidance issued by the TWG for use by licensing inspectors in the assessment of wastewater discharge licence applications.

9. Site Visit

A site visit was carried out by Mr Gavin Clabby, and Mr Simon Hussey, Inspectors, both from the Environmental Licensing Programme, on 27th March 2013. The site visit encompassed a walk through the workings of the WWTP and inspection of the discharge location.

10. Submissions

No submissions were received in relation to this application.

11. Charges

The RL sets an annual charge for the agglomeration at **€7,113.78** and is reflective of the monitoring and enforcement regime being proposed for the agglomeration.

12. 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,



**Suzanne Wylde, Yvonne English, Gavin Clabby, Éimer Godsil, Ciara Maxwell
& Simon Hussey**

Environmental Licensing Programme

Annex 1: Map showing location of Ballyclough WWTP and associated primary discharge point.

