



OFFICE OF CLIMATE, LICENSING & RESOURCE USE

INSPECTORS REPORT ON A WASTE WATER DISCHARGE LICENCE APPLICATION

To:	Dara Lynott, Director	
From:	Michael Martin	Environmental Licensing Programme
Date:	10/05/2014	
RE:	Application for a Waste Water Discharge Licence from Irish Water , for the agglomeration named Castlemartyr Reg. No. D0134-01	

Application & Agglomeration Details

Agglomeration Name:	Castlemartyr (Appendix 1)
County:	Co. Cork
Schedule of discharge licensed:	Discharges from agglomerations with a population equivalent of 2,001 to 10,000.
Licence application received:	22/09/2008
Notices under Regulation 12 (b)(ii) issued:	03/11/2008
Notices under Regulation 18(3)(b) ¹ issued:	21/08/2009, 20/08/2010, 04/03/2014
Information under Regulation 18(3)(b) received:	09/06/2010, 22/10/2010, 07/05/2014
Site notice check:	17/10/2008, 30/12/2008
Site Visit:	27/05/2014
Submission(s) Received:	17/8/2011-Womanagh Trout Anglers Association, 15/04/2011 25/08/2011, 2/7/2012, 30/3/2012, , 03/04/2013,- Womanagh Angling and Development Association.
Unsolicited Information Received:	22/05/2013
Design Population Equivalent:	2,000
Actual Population Equivalent:	1,938
Type of treatment:	Secondary (fine bubble aeration)

¹ Wastewater Discharge (Authorisation) Regulations, 2007, as amended.

Plant description:	The plant is of the activated sludge type and consists of: Inlet works with a mechanically raked 6mm screen, Pumping station with 2 submersible pumps (one duty and one standby), 12m x 2.5m Aeration tank, 9m x 1.8m Clarifier with v-notch weir and outlet chamber with automatic sampling unit and flow meter.
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1. Discharges to waters

The following Table 1 outlines the main considerations in relation to discharges to waters from this agglomeration.

Table 1: Discharges to waters

Primary discharge point	
Receiving water name	Kiltha River
Type of receiving water	Freshwater
Normal flow	322 m ³ /day
Maximum flow	468 m ³ /day
Storm water overflow(s)	
Storm water overflow(s)	Yes – (2)
Receiving water name(s)	Kiltha River, Freshwater
Emergency overflow(s)	
Emergency overflow(s)	Yes – (2)

Schedule A: Discharges & Discharge Monitoring of the recommended licence (RL) specifies the Emission Limit Values (ELVs) to which the discharge from the Castlemartyr agglomeration must conform. Monitoring of the discharges will take place as per this schedule of the RL.

2. Receiving waters and impact

The following table summarises the main considerations in relation to the Kiltagh River downstream of the primary discharge.

Table 2: Receiving waters

Characteristic	Classification	Comment
Receiving water name	Kiltagh River	(WFD Code: IE_SW_19_1909)
Designations	Ballymacoda (Clonpriest Pillmore) SAC Ballymacoda Bay SPA	SAC 00077 SPA 004023
Receiving water monitoring stations	Bridge in Castlemartyr (EPA RS Code: RS 19W011000) South of Ballyhonock Lough (EPA RS Code: RS 19W011300)	400m u/s of SW001 on Kiltagh River 3.47km D/s of SW001, on Womanagh River, south of Ballyhonock Lough
Biological quality rating (Q value)	Q3-4 (slightly polluted) (RS19W011000) Q3 (moderately polluted) (RS19W011300)	Bridge in Castlemartyr - 400m U/s of WWTP on River Kiltagh (2011) South of Ballyhonock Lough - 3.47km D/s of WWTP south of Ballyhonock Lough on Womanagh River (2005)
WFD status	Moderate	Restore (2021)
WFD Risk Category	1a	At risk of not achieving good status

The Kiltagh River joins the Womanagh River 1.1km downstream from Castlemartyr WWTP. The Womanagh Water Management Unit Action Plan (WMUAP) identifies the WWTP in Castlemartyr as a point pressure on the Womanagh catchment.

The applicant carries out regular upstream and downstream ambient monitoring. The monitoring results indicate that the receiving water is not in compliance with the European Communities Environmental Objectives (Surface Water) Regulations, 2009, as amended.

Table 3: 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	1.07	15	1.07	2.14	2.6 ^{Note 2}
Orthophosphate	0.03	0.5	0.036	0.066	0.075 ^{Note 2}
Total Ammonia	0.09	0.5	0.03	0.12	0.14 ^{Note 2}

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

Mass balance calculations were carried out using the monitoring information provided by the applicant. The 95%ile flow in the river at primary discharge is 0.045m³/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 permitted concentration of the parameter in the effluent (Table 3).

The mass balance calculations indicate that, at the current discharge concentrations, the predicted downstream concentrations for orthophosphate and ammonia are not within the standards set in the European Communities Environmental Objectives (Surface Water) Regulations, 2009, as amended. The calculations show that the predicted downstream levels at current discharge concentrations are 0.39mg/l for ammonia and 0.37mg/l for orthophosphate.

The limit of 0.075mg/l for orthophosphate, 0.14mg/l for ammonia and 2.6mg/l of BOD in the receiving water are statutory limits set in the European Communities Environmental Objectives (Surface Water) Regulations, 2009, as amended for Good Status in the receiving water. The Kiltla / Womanagh Rivers (SW_19_1909) have until 31st December 2021 to achieve Good Status in the receiving water. An emission limit value of 0.5mg/l is recommended for orthophosphate and 0.5mg/l for ammonia in the RL. The limits are set based on the mass balance calculations. The emission limit values for orthophosphate and ammonia will apply from 31st December 2019, in accordance with the requirement for the receiving water to achieve Good Status by 31st December 2021. The treatment plant will require improvement works to ensure that it can comply with the proposed emission limit values.

This discharge is between 2,000 and 10,000 p.e. which, under the Urban Wastewater Treatment Directive, was required to have secondary treatment in place by 31st December 2005. The RL, as drafted, sets emission limit values of 35mg/l for suspended solids and 125mg/l for COD, in line with the requirements of the aforementioned Directive. The RL, as drafted sets an emission limit value of 15mg/l for BOD. This is achievable with the type of activated sludge treatment currently in place and monitoring data for the discharge from the WWTP in 2013 show that 11 out of 12 samples were within this limit. These emission limit values apply immediately.

3. Ambient Monitoring

Schedule B: Ambient 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: Ambient Monitoring* are sufficient to ensure that there will be no deterioration in the status of the receiving water as a result of the discharge.

4. 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.

5. Programme of Improvements

The WWTP in Castlemartyr provides secondary treatment for wastewater from the Castlemartyr agglomeration. 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.

The RL, as drafted, requires that licensee carry out improvement works to ensure compliance with the emission limit values as set out in *Schedule A: Discharges & Discharge Monitoring* of the RL and that these works be completed by 31st December 2019.

6. 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:

Table 4: Compliance with EU Directives/Regulations

Compliance with Directives/Regulations	Description and Conditions in RL
Urban Waste Water Treatment Directive [91/271/EEC]	Compliant in 2012
Water Framework Directive [2000/60/EC]	Good Status to be achieved by 2021
EC Environmental Objectives (Surface Water) Regulations 2009 (S.I. No. 272 of 2009), as amended	Not compliant. Schedule A of RL sets ELVs to contribute towards achieving good status in the receiving water by 2021.
Drinking Water Abstraction Regulations	There are no drinking water abstractions downstream.
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 Castlemartyr WWTP.
Environmental Liability Directive	Condition 7.2 of RL

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

The Castlemartyr WWTP discharges indirectly via the Kiltha River and Womanagh River into the Ballymacoda (Clonpriest Pillmore) SAC². The site is protected for priority habitats listed under Annex 1 of the Habitats Directive. It is also selected for protection of species listed under Annex II of the same directive. The site is also designated an SPA³ Ballymacoda Bay under the Birds Directive for the conservation of wild birds.

In the screening for Appropriate Assessment, the water quality of the Kiltha, Womanagh and Dissour Rivers were considered and the discharges from the IPPC installation-Dairygold Continental Cheeses, Mogeely (P0817-01), Ladysbridge WWTP (D0328-01), Killeagh WWTP (D0301-01), Ballymacoda Septic Tank (A0439-01) and Castlemartyr WWTP (D0134-01) were appraised.

² 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.

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 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 sites at Ballymacoda (Clonpriest Pillmore) SAC and Ballymacoda Bay SPA and the Agency considered, for the reasons set out below, that the activity is not directly connected with or necessary to the management of those sites as European Sites 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.

This determination is based on the quality of water upstream of the SAC and SPA in the Womanagh River. 15 samples taken over 16 months in 2013/14 show that physico-chemical parameters, 9 kms u/s of the European Sites at the EPA station on the Womanagh River, South of Ballyhonock lake (RS19W011300) are in compliance with the European Communities Environmental Objectives (Surface Water) Regulations, 2009, as amended.

7. Cross Office Liaison

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.

8. Compliance

A PAE complaint (PAE2011/115) was made in relation to "pollution incidents of varying severity originating from the waste water treatment plant" in Castlemartyr. The causes of these incidents were identified and remediated in 2012. The sludge age was reduced, thus eliminating nitrifiers which previously had been creating nitrogen gas as a by-product of denitrification. The nitrogen gas had been responsible for lifting sludge to the top of the clarifier. A polyelectrolyte dosing pump was installed to help bind the sludge and make it denser, which aided sludge retention and an anti-foaming agent was introduced to reduce sludge build up on the clarifier surface, thus preventing an overflow of solids on the clarifier weir.

9. Submissions

Six submissions were received in relation to this licence. The issues raised in the submissions are summarised below. However, the original submissions should be referred to at all times for greater detail and expansion of particular points.

Submissions: 1- 5

Submitted by: Womanagh Trout Anglers Association Date received: 17/08/2011
Submitted by: Womanagh Angling and Development Association Dates received: 25/08/2011, 02/07/2012, 03/04/2013 and 15/04/2013.

All 5 submissions above related to "*pollution incidents of varying severity originating from the waste water treatment plant*". Members of the Womanagh Angling & Development Association and members of the Womanagh Trout Anglers Association had recorded, and in many cases, photographed the incidents. A number of the submissions were copies of emails sent by the Association to Cork County Council and the Agency. Others were copies of press statements. The incidents include:

" <i>Sludge discharge to river</i> " 03/06/2008, 04/08/2008, 04/10/2009 and 03/05/2010
" <i>Untreated sewage entering the river</i> " 03/05/2010
" <i>Discoloured discharge to river</i> " 18/05/2010, 26 & 27 /05/2010, 08/04/2011 and 28/06/2011
" <i>Serious sludge discharge to river</i> " 09 – 18/08/2011

Comment:

In an email reply to the EPA , Cork County Council states "*the WWTP in Castlemartyr has experienced intermittent problems over the years with loss of solids from the clarifier*". To prevent that happening, the sludge age was reduced, thus eliminating nitrifiers which previously had been creating nitrogen gas as a by-product of denitrification. The nitrogen gas had been responsible for lifting sludge to the top of the clarifier. A polyelectrolyte dosing pump was installed to help bind the sludge and make it denser, which aided sludge retention and an anti-foaming agent was introduced to reduce sludge build up on the clarifier surface, thus preventing an overflow of solids on the clarifier weir.

Condition 3.4 of the recommended licence (RL) as drafted, stipulates "The licensee shall take such measures as are necessary to ensure that no deterioration in the quality of the receiving waters shall occur as a result of the discharge". The RL, as drafted, requires the licensee to put in place a programme of improvements and to carry out such improvements to ensure the discharge complies with the Emission Limit Values (ELVs) set in *Schedule A: Discharges & Discharge Monitoring*. The ELVs are set to ensure the receiving water meets Good Status by 2021, as required by the Water Framework Directive [2000/60/EC].

Submission: 6

In a submission dated 22/03/2012, Womanagh Angling and Development Association made the following observations (*a – d*):

- a.* Cork County Council did not provide proposals as to how they planned to deal with the “*plant operating at over-capacity*” and “*it should be a condition of the licence that this be resolved with proper infrastructural development*”.

Comment:

Section 5 of this report addresses the programme of improvements. Condition 5.1 of the RL as drafted requires that a programme of infrastructural improvements will be completed to ensure compliance with the emission limit values as set out in *Schedule A: Discharges & discharge Monitoring* of the RL. In addition, Condition 1.7 of the RL as drafted requires that “the licensee shall maintain such available capacity within the waste water works as is necessary to ensure that there is no environmental risk posed to the receiving water environment as a result of the discharges.

- b.* Womanagh Angling and Development Association note that following a meeting with Cork County Council it was acknowledged that there was a problem with the quality of the discharge and this “*.... will have a long-term detrimental effect on the river, river bank, and the wildlife in the river environs. This includes risks to the increased numbers of salmon spawning in gravel beds downstream of the WWTP*”.
- c.* “*Data provided by Cork County Council in relation to adherence to acceptable limits shows that they have breached these limits – proof that the plant is not operating correctly*”.

Comment:

The Kiltha and Womanagh Rivers are not designated salmonid waters. The 2012 Waste Water Report shows that the discharge from Castlemartyr Waste Water Treatment Plant was compliant with discharge limits set out in the Urban Waste Water Treatment Directive [91/271/EEC]. Mass balance calculations indicate that, at the current discharge concentrations, the predicted downstream concentrations for orthophosphate and ammonia are not within the standards set in the European Communities Environmental Objectives (Surface Water) Regulations, 2009, as amended. The RL as drafted has set ELVs for orthophosphate and ammonia, effective from 31/12/2019 which will ensure that the receiving water will achieve Good Status as required under the Water Framework Directive [2000/60/EC], by 31st December 2021. In accordance with *Schedule C: Specified Improvement Programme* of the RL as drafted, the treatment plant will require improvement works to ensure that it can comply with the proposed emission limit values.

Condition 3.1 of the RL as drafted stipulates “Where discharges from the waste water works are required to comply with Emission Limit Values by a date specified in *Schedule A: Discharges and Discharge Monitoring*, of this licence, the licensee shall, prior to this date, take such measures as are necessary to ensure that environmental pollution is not caused as a result of the discharge”.

d. "Discharge on 22/03/2012 did not seem to be of acceptable quality".

Comment:

The 2012 Waste Water Report shows that the discharge from Castlemartyr Waste Water Treatment Plant was compliant with discharge limits set out in the Urban Waste Water Treatment Directive [91/271/EEC]. *Schedule A: Discharges & Discharge Monitoring* of the RL specifies the ELVs to which the discharge from the Castlemartyr agglomeration must conform. Monitoring of the discharges will take place as per this schedule of the RL.


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



Michael Martin

Environmental Licensing Programme

Appendix 1: Map showing location of Castlemartyr WWTP and associated primary discharge point.

