



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:	15 th April 2014
RE:	Application for a Waste Water Discharge Licence from Irish Water for the Killavullen and Environs agglomeration, Co. Cork, Reg. No. D0447-01.

Application Details	
Schedule of discharge licensed:	Discharges from agglomerations with a population equivalent of 500 to 1000
Licence application received:	22/06/2009
Notice 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, 04/07/2011
Notice under Regulation 28(2) issued:	18/02/2014
Consent under Regulation 28(2) received:	25/02/2014
Additional Information received:	01/04/2014
Site notice check:	10/07/2009
Site visit:	16/10/2013
Submissions Received:	None received

1. Agglomeration

This application relates to the Killavullen 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 The application was originally made by Cork County Council and subsequently transferred to Irish Water on 1st January 2014 under the Water Services (No. 2) Act 2013.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 Killavullen and Environs agglomeration had a population equivalent (p.e.) of 700 in 2011 and the design capacity of the WWTP is 1,000 p.e. The agglomeration had a p.e. of 900 in 2009 and a projected increase to 900p.e. is used in the mass balance calculations below. There are no identified sources of industrial waste water in the agglomeration.

The WWTP has secondary treatment and consists of a grit trap, muncher, aeration tank, clarifier, sludge holding tank and storm water holding tank. There is no

chemical dosing for phosphorus removal. There is a flow meter but there is no final effluent composite sampler in place at the WWTP.

2. Discharges to waters

Primary Discharge

The primary discharge (SW001) is the gravity outfall from the WWTP to the River Ross, adjacent to the WWTP. At 95%ile flow in the river (0.076 m³/sec), there are approximately 42 dilutions available for the projected normal waste water discharge (0.0018m³/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 6 samples)

Parameter	BOD (mg/l)	COD (mg/l)	Suspended solids (mg/l)	Ammonia (mg/l)	Orthophosphate (mg/l)
Average effluent	9	46	17	-	-
WWTP Design standards	25	125	35	-	-

Secondary Discharges

There are no secondary waste water discharges from the agglomeration.

Storm water overflows

There is one storm water overflow at the WWTP which discharges to the River Ross, 20m upstream of SW001.

Emergency overflows

There are no emergency overflows in the agglomeration.

3. Receiving waters and impact

The Ross River 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	Ross River IE_SW_18_888	Converges with the Blackwater (Munster) River, 560m d/s
Relevant designations within 10km	Blackwater River (Cork/Waterford) SAC, Site Code: 002170 Blackwater River is a Salmonid River and is Nutrient Sensitive. SW001 is in a Margaritifera catchment. There are Pearl Mussel locations on the Blackwater (Munster) River.	SW001 discharges directly into this SAC 560m downstream of SW001 100m upstream and 11km downstream of the confluence of the Ross River and Blackwater (Munster) River.

Drinking water abstraction within 10 km d/s	Groundwater abstraction Killavullen Borehole PA1_05500PUB1310	200m upgradient of SW001. SW001 is within the zone of contribution but would be diluted by river water and filtered through soil/subsoil before entering borehole so that risk of impact on abstracted water is unlikely.
EPA monitoring stations & Biological quality rating (Q value)	U/s station RS18R020100 5km u/s of SW001 (tributary converges downstream of this station) D/s station RS18R020500 240m d/s of SW001	Q4 in 2006 Q4 in 2012
WFD status	Good	2011
WFD Risk Category	1a, water body at significant risk of failing objectives	2008
WFD Objective	Maintain good status	2021 deadline
WFD protected areas	RPA drinking water groundwater	

Ambient water quality monitoring data for the River Ross provided by the Local Authority in accordance with the Water Framework Directive is summarised in Table 3 below. The results show that BOD, Orthophosphate and Ammonia levels, downstream of the primary discharge comply with the good status water quality standards specified in the European Communities Environmental Objectives (Surface Waters) Regulations 2009 as amended.

Table 3. Water Quality in the Ross River

Parameter	aSWu-1 80m u/s of SW001 (3-7 samples, 2009)	RS18R020500 240m d/s of SW001 (5 samples, 2012)	Water Quality Standards Note 1
BOD	<2	1.48	≤ 1.5 mg/l (mean)
Orthophosphate (as P)	<0.05	0.022	≤ 0.035 mg/l (mean)
Ammonia (as N)	<0.1	0.033	≤ 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 900 p.e. (700 p.e. plus 26%). 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	0.58	0.25	0.84	≤ 2.6
Orthophosphate (as P)	2	0.047	0.005	0.0052	≤ 0.075
Ammonia- Total (as N)	4	0.093	0.008	0.101	≤ 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.

Killavullen WWTP is not listed among the 18 WWTPs deemed to have a significant adverse effect on the Pearl Mussel or its habitat in the Freshwater Pearl Mussel Munster Blackwater Sub Basin Management Plan. The primary discharge cannot impact on the Pearl Mussel locations upstream on the Blackwater (Munster) River. The discharge as licensed will not impact on the Pearl Mussel location 11km downstream due to the distance between the primary discharge and Pearl Mussel location, the volume and quality of the effluent and the significant dilution available in the receiving water. Therefore the proposed emission limit values (ELVs) for the RL, as drafted, are based on the good rather than high status standards as laid down in the Surface Waters Regulations 2009, as amended.

The calculations show that the predicted downstream concentrations of BOD, Orthophosphate as P and Ammonia- Total (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 an ELV of 25mg/l BOD which is the design limit of the WWTP. The average BOD in the effluent was 9mg/l in 2012, indicating that this ELV can be achieved.

The RL proposes an ELV of 2mg/l Orthophosphate. Average Orthophosphate as P was 0.08mg/l in 2009 (4 samples) indicating that this ELV can be achieved. There is no chemical dosing for phosphorus removal at the WWTP. Plants with chemical dosing for P removal can achieve 0.5 to 0.8mg/l Orthophosphate as P.

The RL proposes an ELV of 4mg/l Ammonia- Total(as N). Average Ammonia- Total (as N) was 0.04mg/l in 2009 (4 samples) indicating that this ELV can be achieved. Conventional activated sludge plants can achieve 2 to 5 mg/l Ammonia.

4. Site Visit

I visited the Killavullen and 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 Ross River for a number of specified parameters.

- Upstream: The location identified by Cork County Council is aSW-1u (grid ref. 164886E 99429N) is approximately 80m upstream of SW001. A new National monitoring station (Station Code: RS18R020480), at a bridge, approximately 120m upstream of SW001, has been included in *Schedule B.2* of the RL.
- Downstream: The location provided by Cork County Council aSW-1d, (grid ref. 165165E 99637N) is approximately 320m downstream of SW001. There is a National monitoring station approximately 240m downstream of SW001 (Station Code: RS18R020500) 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 Killavullen WWTP. The ELVs proposed in the RL are considered achievable without plant upgrade or improvement.

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. Nutrient sensitive water 560m d/s, Conditions 5.1.4 and 5.1.5 require total Phosphorus loadings and total Nitrogen loadings, respectively, in the discharge to be reduced to the maximum practicable extent.
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	Groundwater abstraction, PA1-0500PUB1204, 200m upgradient. Risk of impact is unlikely.
EC Freshwater Fish Directive [2006/44/EC]	Salmonid water 560m d/s. 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.
Environmental Impact Assessment Directive [85/337/EEC]	An EIS was not required for Killavullen 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 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 volume and quality of the effluent and the significant dilution available in the receiving water.

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 Killavullen Agglomeration D0447-01

