



This memo has been cleared for submission to the Board by Senior Inspector, Dr Karen Creed
 Signed: Sonia Smith Date: 16/12/2013

RESOURCE USE

INSPECTORS REPORT ON A WASTE WATER DISCHARGE LICENCE APPLICATION

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|-------|---|-----------------------------------|
| To: | Dara Lynott, Director | |
| From: | Suzanne Wylde | Environmental Licensing Programme |
| Date: | 16 th December 2013 | |
| RE: | Application for a Waste Water Discharge Licence from Cork County Council, for the agglomeration named Millstreet & Environs , Reg. No. [D0332-01]. | |

| Application Details | |
|---|---|
| Schedule of discharge licensed: | Discharges from agglomerations with a population equivalent of 2,001 to 10,000. |
| Licence application received: | 27 th February 2009 |
| Notices under Regulation 18(3)(b) issued: | 22 nd December 2009; 30 th April 2010; 15 th July 2010; 11 th April 2013; 18 th April 2013 |
| Information under Regulation 18(3)(b) received: | 1 st June 2010; 4 th July 2011; 23 rd April 2013; 10 th May 2013 |
| Site notice check: | 20 th March 2009 |
| Site Visit: | 27 th March 2013 |
| Submission(s) Received: | None |

1. Agglomeration

This application relates to the agglomeration named Millstreet & Environs in County Cork (See map in Annex 1).

The Waste Water Treatment Plant (WWTP) was designed to cater for a population equivalent of 1,600 and the existing p.e. served by the wastewater works is 1,994. The local authority plan to install a new WWTP in the future (discussed under Programme of Improvements) to treat a p.e. of 4,101. The influent to the wastewater treatment plant is primarily domestic wastewater. The sewage system in Millstreet & Environs is a partially combined system.

The existing WWTP provides secondary treatment. The plant is an extended aeration system consisting of inlet chamber, oxidation ditch, settling tank and sludge drying beds.

2. Discharges to waters

The final treated effluent discharges through the primary discharge point (SW001) to the Tanyard Stream. The Tanyard Stream is a tributary of the Finnow River. The Tanyard Stream joins the Finnow River approximately 1500m downstream of the primary discharge. The Finnow River flows into the Blackwater (Munster) River after a further 500m.

The normal flow from the WWTP is 572m³/day, while the maximum discharge from the WWTP is 3,432m³/day. The final treated effluent quality from the WWTP in 2012 was within the limits prescribed in the Urban Wastewater Treatment Regulations (BOD 25mg/l, COD 125mg/l and suspended solids 35mg/l). The effluent monitoring results for 2012 for BOD, COD and suspended solids were in the range of 3-6mg/l, 11-31mg/l and 3-11mg/l, respectively.

There are no secondary discharge points within the agglomeration.

There are four pumping stations under the control of the local authority within the agglomeration. These are located at Drishane, Drominahilla, Mount Leader and Killarney Road. There are two emergency overflows from the Killarney Road and Mount Leader pump stations; these overflow to the Finnow River. The overflows occur as a result of power failure, pump failure and failure of the rising main.

There are three stormwater overflow(s) within the agglomeration. There are two storm water overflows located at the entrance to the WWTP on Station Road; these overflow to the Tanyard Stream. There is one stormwater overflow at the junction of Coologane street and Station Road; this overflows to the Tanyard Stream. The licence, as drafted, requires that the stormwater overflow must conform with the criteria as set out in the DoECLG '*Procedures and Criteria in Relation to Storm Water Overflows*', 1995 and any other guidance as may be specified by the Agency. The programme of infrastructural improvements required under Condition 5 of the Recommended Licence (RL) requires an assessment of all storm water overflows (Condition 5.2.3) and preparation of an implementation plan as necessary (Condition 5.3).

Schedule A: Discharges & Discharge Monitoring of the recommended licence (RL) specifies the Emission Limit Values (ELVs) to which the discharge(s) from the Millstreet & Environs 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 Tanyard Stream downstream of the primary discharge.

Table 1: Receiving waters

| Characteristic | Classification | Comment |
|-------------------------------------|--|--|
| Receiving water name and type | Tanyard Stream Finnow River | WFD Code: IE_SW_18_917 WFD Code: IE_SW_18_404 |
| Applicable Regulations | UWWT Regulations ^{Note 1} | In compliance |
| | Surface Water Regulations ^{Note 2} | Tanyard Stream – in compliance Finnow River – in compliance |
| Designations | Blackwater River (Cork/Waterford) | SAC (Site code: 2170) |
| | Blackwater (Munster) | Designated Salmonid water |
| Receiving water monitoring stations | Upstream of TPEFF0500D0332SW001 (EPA RS Code: RS18M430680) | 200m u/s of primary discharge on Tanyard Stream |
| | Wallis's Bridge (EPA RS Code: RS18F030400) | 400m d/s of confluence between Tanyard Stream & Finn timer River |
| Biological quality rating (Q value) | Q4 (Good status, 2012) | The Finn timer River d/s of the confluence with the Tanyard Stream. |
| WFD status | High | Restore (2009) |
| WFD Risk Category | 1a | The Tanyard Stream is not monitored at the point of the primary discharge but downstream of the discharge the Tanyard Stream and the Finn timer River are at risk of not achieving good status |

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

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

The primary discharge point (SW001) is located 1km upstream of the Blackwater (Cork/Waterford) SAC, which has been designated partly on the basis that the fresh water pearl mussel, *Margaritifera margaritifera* is a qualifying interest. 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 Millstreet as a point pressure on the Blackwater (Munster) catchment. Specifically in relation to the Millstreet WWTP the WMUAP notes that the WWTP has insufficient capacity and that there is evidence of impact in the receiving water.

The local authority carried out upstream and downstream ambient monitoring on the Tanyard Stream in 2007, 2008 & 2009. The monitoring results indicate that the receiving water, upstream of the primary discharge point, is in compliance with the high status requirements in the European Communities Environmental Objectives (Surface Water) Regulations, 2009, as amended. The monitoring results indicate that the receiving water downstream of the primary discharge is in compliance with the

high status requirements in the afore named regulations for BOD and orthophosphate. However, the stream is not in compliance for ammonia.

The Blackwater (Munster) 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, as amended. The high status limits (95%ile) for BOD, ammonia and orthophosphate are 2.2mg/l, 0.090mg/l and 0.045mg/l, respectively.

The local authority proposes to upgrade the wastewater works and relocate the discharge point to the Finnow River (See map in Annex 1). Mass balance calculations have been done on the existing and proposed discharge locations.

Mass Balance calculations on the existing primary discharge point (SW007):

Table 2: Mass Balance Calculations – existing discharge.

| Parameter | Background Concentration (mg/l) | Proposed ELVs for discharge from SW000 (mg/l) | Contribution from primary discharge (mg/l) | Predicted downstream concentration (mg/l) | Relevant standard (mg/l) |
|----------------|---------------------------------|---|--|---|--------------------------|
| BOD | 0.76 | 8 | 1.3 | 2.18 | 2.2 ^{Note 1} |
| Orthophosphate | 0.05 | 0.1 | 0.01 | 0.06 | 0.075 ^{Note 1} |
| Total Ammonia | 0.06 | 0.35 | 0.07 | 0.13 | 0.14 ^{Note 1} |

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

Mass balance calculations were carried out using the monitoring information provided by the local authority. The 95%ile flow in the Tanyard Stream is 0.02m³/s. The mass balance calculations are based on the 95%ile flow in the receiving water (Tanyard Stream), 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, in Table 2, indicate that, at the proposed emission limit values in the table, the predicted downstream concentrations for BOD, orthophosphate and ammonia are within the physicochemical standards for good status set in the European Communities Environmental Objectives (Surface Water) Regulations, 2009, as amended. As can be seen from the table, the ELVs necessary to prevent breaches of these standards are very low and are not likely to be achievable with the existing infrastructure.

As previously mentioned the local authority plans to relocate the discharge to the Finnow River. In the interim the RL requires this discharge point to meet the Urban Wastewater Treatment Regulations standards (BOD 25 mg/l, COD 125 mg/l, suspended solids 35 mg/l). The RL, as drafted, requires the existing discharge point to be decommissioned by 31st December 2015.

Mass Balance calculations on the proposed primary discharge point to Finnow River (SW001):

The licence requires that the programme of improvements for the Millstreet agglomeration be completed by 31st December 2015, i.e. that the new treatment plant be installed and the discharge point be relocated to the Finnow River by this date. The ELVs set out in Table 3 below have been included in the RL, as drafted, to be achieved by 1st January 2016. The calculations were carried out using the notional clean river approach as there is no upstream monitoring on the River Finnow available. The 95th percentile flow in the Finnow River is 0.27m³/s, a significantly higher flow in the receiving water than that available in the Tanyard Stream.

Table 3: Mass Balance Calculations – proposed discharge to Finnow River.

| Parameter | Notional Clean River Values ^{Note 1} | Proposed ELVs for discharge from SW001 (mg/l) | Contribution from primary discharge (mg/l) | Predicted downstream concentration (mg/l) | Relevant standard (mg/l) |
|----------------|---|---|--|---|--------------------------|
| BOD | 0.26 | 25 | 0.59 | 0.85 | 2.2 ^{Note 2} |
| Orthophosphate | 0.005 | 0.5 | 0.007 | 0.012 | 0.045 ^{Note 2} |
| Total Ammonia | 0.008 | 1 | 0.022 | 0.03 | 0.09 ^{Note 2} |

Note 1: Notional clean river values for AC based on 1/5th of the mean "High Status" standard in the European Communities Environmental Objectives (Surface Waters) Regulations, 2009, as amended.

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

The standards of 0.045mg/l for orthophosphate, 0.090mg/l for ammonia and 2.2mg/l of BOD in the receiving water are statutory standards in the European Communities Environmental Objectives (Surface Water) Regulations, 2009, as amended, to achieve high status in the surface water.

The licence sets ELVs of 1mg/l for ammonia and 4.5mg/l orthophosphate to be achieved by 1st January 2016. These emission limit values should be achievable at a secondary treatment plant that includes nutrient removal, as is proposed by the local authority. Having regard to the designation of the receiving waters as salmonid, an ELV of 25 mg/l for suspended solids has been set in the RL. These ELVs will ensure that the Finnow River will meet the high status requirements of the European Communities Environmental Objectives (Surface Waters) Regulations, 2009, as amended.

Condition 4.21 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: 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. Condition 4.22 requires that the ambient monitoring be undertaken for the existing primary discharge until such time as this discharge is discontinued. Ambient monitoring shall only be carried out for the proposed primary discharge point once the discharge commences at this point.

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

Millstreet sewerage scheme is listed on the current Water Services Investment Programme (WSIP) 2010-2012 under the heading "*Schemes at Planning Stages 2010-2012*". A Preliminary Report has been submitted to the Department of Environment, Heritage and Local Government. Cork County Council received approval from the Department for the Preliminary Report for Millstreet sewerage scheme on 9th August 2013.

The local authority proposes to install a new secondary wastewater treatment plant that will include nutrient removal (nitrogen and phosphorous removal). The local authority stated that the works will be carried out under a Design Build contract. Therefore, the type of treatment would be at the discretion of the contractor to a design p.e. of 4,101 and to achieve the following standards: 5mg/l BOD, 5mg/l suspended solids, 1mg/l total ammonia, 10mg/l nitrate and 0.5mg/l phosphate. The proposal includes a new primary discharge point to the Finnow River, approximately 1500m downstream of the existing discharge point. The proposed upgrade works also include upgrading the collection network that will reduce the hydraulic flow to the WWTP.

The RL, as drafted, requires that the new WWTP with nutrient removal be put in place by 31st December 2015.

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 (existing or proposed) from the Millstreet WWTP.

Sensitive Waters

Neither the Tanyard Stream nor the Finnow River are 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 Cork County Council for the Tanyard Stream demonstrates compliance in the receiving water with the European Communities Environmental Objectives (Surface Water) Regulations, 2007, as amended. The RL, as drafted, includes emission limit values to ensure that the treatment provided by the plant is sufficient to satisfy the European Communities Environmental Objectives (Surface Water) Regulations, 2007, as amended.

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

Millstreet WWTP complies with the requirements of the Urban Waste Water Treatment Directive, in terms of the level of treatment provided (secondary). 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 4.20 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]

The Millstreet WWTP discharges to the Tanyard Stream. As already mentioned the Tanyard Stream joins the Finnow River (to which the proposed new primary discharge will outfall) approximately 1500m downstream of the primary discharge. The Finnow outfalls to the Blackwater (Munster) River, part of the Blackwater River (Cork/Waterford) SAC (Site code: 002170), 500m downstream of the confluence with the Tanyard Stream.

This SAC overlaps with a number of SPAs¹, 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).

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 Blackwater (Munster) River, part of the Blackwater River (Cork/Waterford) SAC² (Site code: 002170), Blackwater Estuary SPA (004028), Blackwater Callows SPA (004094) and Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA (004161) 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 cannot be excluded, on the basis of objective scientific information following screening under this Regulation,

¹ 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.

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.

that the activity, individually or in combination with other plans or projects, will have a significant effect on a European site and accordingly determined that an Appropriate Assessment of the activity is required, and for this reason, along with the potential for impact on the qualifying habitats and species, determined to require the applicant to submit a Natura Impact Statement.

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 of a European Site(s) in particular the Blackwater (Munster) River, part of the Blackwater River (Cork/Waterford) SAC³ (Site code: 002170), Blackwater Estuary SPA (004028), Blackwater Callows SPA (004094) and Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA (004161), having regard to its conservation objectives and will not affect the preservation of those sites at favourable conservation status.

In coming to this conclusion, the Agency is satisfied that it has identified all aspects of the activity which can, by themselves or in combination with other plans or projects, affect the conservation objectives of a European Site in particular the Blackwater (Munster) River, part of the Blackwater River (Cork/Waterford) SAC⁴ (Site code: 002170), Blackwater Estuary SPA (004028), Blackwater Callows SPA (004094) and Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA (004161) and is certain, in the light of the best scientific knowledge in the field, that the activity will not, if carried out in accordance with this licence and the conditions attached hereto, have lasting adverse effects on the integrity of those sites, will not hinder the preservation of those sites at a favourable conservation status, and will not hinder the lasting preservation of the constitutive characteristics of those sites that are connected to the presence of the habitat types, flora and fauna, whose preservation was the objective justifying the designation of those sites, will respect the strict protection of animal types and plant types listed in Annex IV of Council Directive 92/43/EEC, in particular the following animal and plant types: Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior*; *Taxus baccata* woods of the British Isles; Watercourses of plain to montane levels with the *Ranuncullion fluitantis* and *Callitricho-Batrachion* vegetation; Estuaries; Mudflats and sandflats not covered by seawater at low tide; *Salicornia* and other annuals colonising mud and sand; Atlantic salt meadows; Mediterranean salt meadows; Perennial vegetation of stony bank; Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles; Sea lamprey; River lamprey; Brook lamprey; Twaite Shad; Salmon; Freshwater Pearl mussel; White clawed crayfish; otter; Killarney fern; *Cygnus cygnus*; *Anas Penelope*; *Anas crecca*; *Limosa limosa*; wetlands; *Pluvialis apricaria*; *Vanellus vanellus*; *Calidris alpine*; *Limosa lapponica*; *Numenius arquata*; *Tringa tetanus*; *Circus cyaneus*. The activity will not cause any disturbance to those species or any deterioration in their conservation status.

The Agency is satisfied that no reasonable scientific doubt remains as to the absence of such effects for the following reasons:

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

³ 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.

⁴ 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.

implications for pearl mussel, lamprey and salmon stocks. A reduction in salmonids as prey species may negatively affect otter populations in the catchment. There are Freshwater Pearl Mussel populations in the main Blackwater channel downstream of the Finnow river confluence, at Keale Bridge. The Millstreet WWTP is overloaded beyond its design capacity, and levels of orthophosphate downstream of the plant have been recorded periodically elevated. While the Finnow River is likely to have a high assimilative capacity, shows good macro-invertebrate diversity and little evidence of eutrophication, it may be transmitting phosphate from the WWTP to the Blackwater where impacts to the pearl mussel populations are possible.

The EPA reported finding dead shells on the Finnow River between 1987 and 2006. The location of these shells is downstream of the emergency overflow from the Mount Leader pumping station. The Mount Leader pumping station has one pump with an estimated sump capacity of 7m³. The RL requires that a back-up pump be installed at this pumping station.

The appropriate assessment concluded that the negative pressure upon the Freshwater pearl mussel populations occurring in the Blackwater downstream of the Finnow River confluence due to overloading and ongoing phosphorus input to said waterbody is considered a significant impact that will continue until nutrient removal is put in place at the plant.

The appropriate assessment demonstrates that the discharge will not adversely affect the integrity of the European Site subject to the mitigation measures of upgrading the WWTP and installing a tertiary nutrient removal phase in the plant design. Once this upgrade has been put in place, it is considered that negative pressure on Pearl Mussel in the Blackwater downstream of Millstreet will be effectively mitigated against.

Schedule C.1: Specified Improvement Programme requires the upgrade works to be completed by 31st December 2015, to include the installation of nutrient removal.

Environmental Impact Assessment Directive [85/337/EEC]

An EIS was not required for Millstreet WWTP 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

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. Submissions

No submissions were received in relation to this application.

10. Charges

The RL sets an annual charge for the agglomeration at €5,530.68 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



Suzanne Wylde

Environmental Licensing Programme

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



