


This report has been cleared for submission to the Board by the Karen Creed.

Signed Karen Creed Date 13/4/10

		<b>OFFICE OF CLIMATE, LICENSING &amp; RESOURCE USE</b>	
<b>INSPECTORS REPORT ON A WASTE WATER DISCHARGE LICENCE APPLICATION</b>			
<b>To:</b>	DIRECTORS		
<b>From:</b>	Seán O Donoghue	<b>Environmental Programme</b>	<b>Licensing</b>
<b>Date:</b>	30 <sup>th</sup> March 2010		
<b>RE:</b>	Application for a Waste Water Discharge Licence from Limerick County Council, for the agglomeration named Adare Town and Environs, Reg. No. D0312-01.		

Application Details	
Schedule of discharge licensed:	Discharges from agglomerations with a population equivalent of 1,001 to 2000 p.e.
Licence application received:	27 <sup>th</sup> February 2009
Notices under Regulation 18(3)(b) issued:	9 <sup>th</sup> June 2009
Information under Regulation 18(3)(b) received:	10 <sup>th</sup> August 2009, 1 <sup>st</sup> September 2009, 18 <sup>th</sup> December 2009
Site notice check:	20 <sup>th</sup> March 2009
Site visit:	22 <sup>nd</sup> May 2009
Submission(s) Received:	None.

## **1. Agglomeration**

This application relates to the Adare agglomeration. The agglomeration is served by a combined sewer network, and a secondary treatment plant with nutrient removal, located north of Adare and discharging to the Mague estuary. The plant is designed for a biological capacity of 2,500 p.e. The current loading (comprising both domestic and non-domestic waste water sources), is estimated at 1,620 p.e., projected to increase to about 2,250 p.e. by 2016. A licence review will be required for a loading in excess of 2,000 p.e.

The primary discharge point (SW-1) is via an outfall pipe to the Mague estuary, and consists of treated effluent from the WWTP. SW2 and SW3 are emergency overflows serving the two pumping stations in the agglomeration. There are no stormwater overflows (SWOs) in the agglomeration.

The original WWTP at Adare was constructed in the 1950s. This plant has been almost entirely replaced in a plant upgrade in 2007. Treatment at the plant consists of screening followed by sequential batch reactors (SBRs) where aeration, settlement, and sludge decanting occur. Additional nutrient removal also takes place through the addition of ferric sulphate prior to discharge. The WWTP in Adare provides secondary treatment with nutrient removal, and is designed to a 25:35:0.5:0.5 (BOD: SS: Ortho-P: Ammonia) treatment specification.

An assessment of the plant's ability to deal with current and future loads was carried out by Murnane Consulting Engineers in 2009 at the request of Limerick County Council. The assessment deals with long term options for the treatment of Adare's wastewater which are outside the six year lifetime of this licence.

## **2. Discharges to waters**

Under dry weather flow (DWF) conditions approximately 400 m<sup>3</sup>/day of treated effluent is discharged through SW1. There are no IPPC licensed discharges in the agglomeration. Monitoring data for SW-1 was submitted to the Agency as part of the application process. This data has been generated as a consequence of the monitoring regimes imposed by the Urban Waste Water Treatment Regulations, 2001 (S.I. No. 254 of 2001).

High concentrations of oil, fats and grease are sometimes present in the influent, and have caused difficulties with the operation of the WWTP, such as interference with dissolved oxygen probes. Corrective actions put in place by Limerick County Council at the WWTP and in the agglomeration in the form of inspections of commercial premises, have improved the situation in recent times, however the RL requires the installation of grease removal facilities at the WWTP to ensure the continued efficient operation of the plant. The monitoring undertaken for the purposes of the application process did not indicate that elevated levels of any dangerous substances, as defined in the Dangerous Substances Directive (2006/11/EC), were being discharged.

There are two pumping stations in the agglomeration. The forward feed pumping station is located within the site of the WWTP and receives flows from the agglomeration. The Deerpark pumping station pumps flows into the main sewer network of the agglomeration. Both pumping stations have duty and standby pumps. There is an emergency overflow from each station. SW2 and SW3 are emergency overflows serving the forward feed and Deerpark pumping stations, and discharge to the River Mague and an unnamed stream respectively.

### 3. Receiving waters and impact

The following table summarises the main considerations in relation to the Mague estuary downstream of the primary discharge.

**Table 1. Receiving waters**

Characteristic	Classification	Comment
Receiving water name and type	Maigue Estuary	Transitional water body
Resource use	None.	No drinking water abstraction downstream.
Amenity value	General.	
Applicable Regulations	Environmental Objectives Regs Notel	
EPA monitoring stations	24M01 0900 Castleroberts Bridge (River Maigue)  SN210 Adare Quay (Maigue Estuary)  SN220 Ferry Bridge (Maigue Estuary)	Approx 3 km u/s of discharge  Approx. 400 m d/s of discharge  Approx. 6 km d/s of discharge
Biological quality rating (Q value)	0900 Upstream Q 4	Last rated 2008
Trophic status	Maigue Estuary Intermediate	Last rated 2006 - 2008
WFD status	Maigue Estuary Moderate (2007 – 2009)	Dissolved Oxygen and DIN are parameters of concern.
WFD Risk Category	At risk of not achieving good status	
WFD protected areas	SAC	Lower River Shannon SAC (Site Code 0002165).  Also Shannon and Fergus estuaries SPA (Site Code 004077), 6 km downstream of discharge, at Ferry Bridge.

**Note 1:** European Communities Environmental Objectives (Surface Waters) Regulations 2009. S.I. No. 272 of 2009.

Monitoring undertaken by the Agency recently indicates that the quality of the receiving water is rated as being Q4 upstream of the discharge point. The Maigue estuary at, and downstream of, the discharge point has intermediate trophic status, and is rated moderate under the WFD monitoring programme (2007 – 2009). This rating is primarily due to low Dissolved Oxygen levels and elevated Dissolved Inorganic Nitrogen (DIN). OEA monitoring data from this period for locations SN210 and SN220 indicates consistent elevation of DIN and Orthophosphate levels, although as demonstrated below, the contribution of the primary discharge in this regard is minimal, and the ELVs set in the RL will further minimise this contribution. This is confirmed by an examination of median background data for the River Maigue upstream of the discharge at Castleroberts Bridge, which shows elevated levels of these parameters.

The assessment of the impact of the discharge considered both the receiving water monitoring results and the contribution of the discharge based on the waste water composition and quantity, and receiving water flow data (using nearest upstream flow data at Castleroberts Bridge). This flow data provides a conservative estimation of impact as it is 3 km upstream of the discharge point, and is valid as an average over a tidal cycle. Results are presented for both the existing population equivalent of c. 1,620 p.e., and the maximum (2,000 p.e.) as specified in Part I of the RL. Approximately 240 dilutions are currently available on the basis of DWF discharge volume (400 m<sup>3</sup>/day) and 95%ile flow in the River. This figure will fall to 194 dilutions at 2,000 p.e..

Based on the predicted volumetric discharges and ELVs specified in the RL for relevant parameters, the receiving waterbody is capable of accommodating the proposed discharge without causing a breach in relevant standards (BOD and Orthophosphate) as outlined in National and European legislation. Note that there is no water quality standard set for Total Ammonia or DIN in transitional waters in the Environmental Objectives (Surface Waters) Regulations 2009. S.I. No. 272 of 2009.

The WWTP is currently normally achieving an orthophosphate discharge concentration of 1.0 mg/l or less. At 1 mg/l the discharge will raise the ortho-phosphate level in the receiving water at 95%ile flow by approximately 4 ug/l at current loadings and by 5 ug/l at a 2,000 p.e. loading. Similarly for Total Ammonia, at the design effluent specification of 0.5 mg/l, the discharge will increase the concentration at 95%ile flow in the receiving water by 2 ug/l and 3 ug/l respectively. For Total Nitrogen, the design effluent specification is 15 mg/l, and the contribution at 95%ile flow in the receiving water is 0.06 mg/l and 0.08 mg/l respectively. All these contributions compare very favourably with any relevant standards specified in S.I. No. 272 of 2009, and are not expected to significantly impact on receiving water quality. The RL specifies ELVs in accordance with the treatment specification as outlined above.

*Schedule A: Discharges* of the RD specifies Emission Limit Values (ELVs), for the discharge (SW-1). The ELVs are aimed at providing a high degree of protection to the receiving water body, and are based on data supplied in the application concerning the performance of the WWTP. Monitoring of the discharges will take place as per *Schedule B: Monitoring* at emission points SW-1.

#### **4. Ambient Monitoring**

The RL requires monitoring of the receiving water for a range of parameters both upstream and downstream of the primary discharge. This is to verify that no deterioration of the receiving water quality is occurring due to the discharge.

#### **5. Combined Approach**

The Waste Water Discharge Authorisation Regulations, 2007 (S.I. No. 684 of 2007) 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 (S.I. No. 254 of 2001) 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 S.I. No. 684 of 2007.

## **6. Programme of Improvements**

The WWTP in Adare provides secondary treatment with nutrient removal, and is designed to a 25:35:0.5:0.5 (BOD: SS: Ortho-P: Ammonia) treatment specification. The plant was commissioned in 2007, and there is no programme of improvements for the plant specified in the application. However the assessment report referred to in Section 1 above provides costings for recommended short term works at the plant. These works consist of installation of grease removal and stormwater holding facilities, and repair of the tidal flap valve and primary discharge outfall, at a total cost of approximately €150,000. The RL requires the completion of these works by 1<sup>st</sup> January 2014. The conditions and emission limit values specified in the RL should therefore ensure no deterioration in the quality of the receiving waters as a result of the discharge.

## **7. Site visit.**

Wastewater from the agglomeration arises from domestic and non-domestic sources. There is no significant industrial source. An inspection of the agglomeration in May 2009 focussed on the WWTP, the primary discharge point and emergency overflows, and the receiving waters.

## **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 (S.I. No. 684 of 2007) notably:

### Drinking Water Abstraction Regulations

There is no drinking water abstraction downstream of discharges from the Adare agglomeration.

### Sensitive Waters

Neither the River Maigue nor the Maigue estuary are designated sensitive under the UWWT Regulations (S.I. No. 254 of 2001) as amended.

### Water Framework Directive [2000/60/EC]

The RL, as drafted, transposes the requirements of the Water Framework Directive. Those limits specified in the RL are determined with the aim of achieving good water quality status by 2015.

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

It should be noted that the p.e. of the agglomeration is below the 2,000 p.e. threshold at which the ELVs specified in Part I of the second schedule of the UWWT Regulations (S.I. No. 254 of 2001) apply. For agglomerations under this threshold, “appropriate treatment” is required as specified in Article 7 of the Regulations. The term appropriate treatment is defined in the Regulations in terms of the level of treatment necessary to protect water quality. However it should also be noted that the ELVs specified in the schedule comply with the relevant requirements of Part I of the second schedule.

The ELVs specified in the RL are based on the performance specification of the WWTP, and can be considered to be “appropriate treatment” in terms of impact on water quality, as discussed in Section 3 above. The effluent monitoring requirements specified in the RL are based on the requirements for a 2,000 p.e. agglomeration, and therefore comply fully with the requirements of the Directive.

#### Bathing Water Directive [2006/7/EC]

There are no designated bathing waters on the River Maigue or the Maigue estuary, upstream or downstream of the discharge.

#### EC Freshwater Fish Directive [2006/44/EC]

Neither the River Maigue or the Maigue estuary, are designated salmonid waterways.

#### Shellfish Waters Directive [2006/113/EC]

There are no designated shellfish waters located in the vicinity of the discharges.

#### Dangerous Substances Directive [2006/11/EC]

The applicant has provided sampling results for all of the 19 dangerous substances in the primary discharge for the purposes of the licence application. The measured concentrations are not considered significant. The agglomeration is effectively domestic in nature with a limited contribution from some commercial activities. The initial screen for the application is therefore considered sufficient and the agglomeration is compliant with the Dangerous Substances Directive.

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

The River Maigue/Maigue estuary forms part of the Lower River Shannon cSAC, (Site Code 0002165). Most of the estuarine part of this site is a designated SPA (the Shannon and Fergus estuaries downstream of Limerick City, site code 004077) under the Birds Directive, primarily to protect the large numbers of migratory birds present in winter.

The applicant conducted an 'appropriate assessment' of the impact of the discharge on key species and habitats in the designated sites, and I am satisfied on the basis of the assessment that the licensed discharge will not have an adverse impact in this regard.

It is considered that the RL as drafted will provide a high level of protection to the receiving waters, as it will ensure that all discharges from the agglomeration will be provided with an appropriate level of treatment, as per *Condition 3 Discharges*. By ensuring that all waste water is treated to a high standard the RL will act to improve the quality of the receiving water environment.

#### **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.

Ambient monitoring data relating to water quality in the Maigue Estuary was provided by Shane O' Boyle of the Aquatic Environment Unit of the Office of Environmental Assessment.

**Submissions**

No submissions were received in relation to this application.

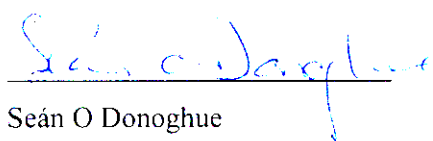
**Charges**

The RL sets an annual charge for the agglomeration at €2,316 and is reflective of the monitoring and enforcement regime being proposed for the agglomeration.

**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



Seán O Donoghue

Office of Climate, Licensing and Resource Use

Figure 1. Adare town and Agglomeration.

