

This report has been cleared for submission to the Director by Senior Inspector Karen Creed
Signed Sae Reilly Date 25/4/11



**OFFICE OF CLIMATE,
LICENSING & RESOURCE USE.**

**INSPECTORS REPORT ON A WASTE WATER DISCHARGE
LICENCE APPLICATION**

To:	DIRECTORS		
From:	Patrick Byrne	Environmental Programme	Licensing
Date:	17 th April 2012		
RE:	Application for a Waste Water Discharge Licence from Monaghan County Council, for the agglomeration named Emyvale, Reg. No. D0346-01		

Schedule of discharge licensed:	Discharges from agglomerations with a population equivalent of between 1,001 to 2,000.
Licence application received:	15 th April 2009
Notice under Regulation 21(1) issued:	8 th May 2009
Notices under Regulation 18(3)(b) issued:	29 th July 2010
Information under Regulation 18(3)(b) received:	15 th February 2011
Site notice check:	23 rd April 2009
Site visit:	13 th July 2010
Submission(s) Received:	29 th March 2012, Inland Fisheries Ireland

1. Agglomeration

The Waste Water Discharge Licence (WWDL) application relates to the agglomeration of Emyvale. Emyvale is located in north Co. Monaghan, approximately 10km north of Monaghan town and 8km south of Aughnacloy in Co. Tyrone. The population equivalent (p.e.) of the Emyvale agglomeration is currently approximately 1045, it is predicted that the agglomeration may increase to approximately 1460p.e. based on a predicted population growth and pending development which has been granted planning permissions. The projected p.e. may be reduced due to the economic situation since the licence application was received in 2009. The wastewater arises from domestic and commercial activities within the

agglomeration, there are no identified industrial waste water sources in the agglomeration.

Waste water is collected within the agglomeration by means of a network of gravity sewers, there are five pumping stations and associated rising mains within the system.

The waste water works have been significantly upgraded in the past five years. The waste water treatment plant (WWTP) serving the Emyvale agglomeration has a design capacity of 2,000 p.e.. The WWTP consist of inlet works (automated screens), a facility to inject ferric sulphate, four primary settlement tanks, 2 rotating biological contactors, two biological filter towers of plastic media, and three final settlement tanks. Flows in excess of the works capacity, during storm events, are diverted from the inlet works to a storm water tank, waste water collected in the storm tank is returned to the inlet works when capacity is available. If there are prolonged storm events the storm water from the storm water tank is discharged to the Mountain Water Stream via the primary discharge point, SW001 (labelled as SW1(P) in the licence application).

Discharge from the WWTP is to the Mountain Water River. The Mountain Water joins the Blackwater approximately 8.5km downstream at the border with Northern Ireland. The agglomeration is within the Neagh Bann International River Basin District.

2. Discharges to waters

The primary discharge from the waste water works is to the Mountain Water River, which passes along the south western boundary of the WWTP. The discharge point also serves as the storm water storage tank discharge point, however the primary discharge monitoring point does not include flows from the storm tank.

There are no identified storm water overflows or emergency overflows within the collection network. There are five pumping stations within the agglomeration, each is fitted with a duty and a stand-by pump.

Based on 12 samples of the primary discharge collected and analysed by the applicant, during 2010, the average and maximum effluent quality is 10 and 23 mg/l BOD, 54 and 106mg/l COD, 13 and 24mg/l suspended solids, 3.3 and 5.5mg/l total phosphorus, 26 and 31mg/l total nitrogen. The quality of the primary effluent is in compliance with the Urban Waste Water Treatment (UWWT) Regulations, as it is a discharge to freshwater of <2,000 p.e., appropriate treatment is required and therefore the UWWT Regulations standards are not strictly applicable.

The concentration of total phosphorus in the primary discharge is elevated compared with the other parameters monitored. There is infrastructure available on site to inject ferric sulphate, however dosing is not undertaken at all times.

3. Receiving waters and impact

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

Table 1.0 Receiving waters

Characteristic	Classification	Comment
Receiving water name and type	Mountain Water River	EPA River code: 03M01 WFD River Code: IE-NB-03-17 Enters the Ulster Blackwater 8.5km d/s of primary

		discharge
Resource use	None identified by the applicant	
Amenity value	None identified by the applicant	
Applicable Regulations	Surface Water Regulations ^{Note 1} Urban Waste Water Treatment Regulations 2001 as amended	See below See below
Designations	No designations	
EPA monitoring stations	Station 0400 1 st Br. u/s Emyvale Station 0500 Br 1.1km d/s Emyvale Station 0650 Br North of Glaslough	1.5km upstream of the primary discharge 750m downstream of primary discharge 6.5km downstream of primary discharge
Biological quality rating (Q value)	Station 0400 – Q3-4 in 2007 and 2010 Station 0500 – Q3 in 2007 and 2010 Station 0650 – Q3 in 2004 and Q3-4 2010	
WFD status	Poor	
WFD Risk Category	1a At risk of not achieving good status	
WFD Objective	Restore good status by 2021	Under the Blackwater Water Management Unit Action Plan.

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

The receiving water for the primary discharge from the agglomeration is the Mountain Water River. The Mountain Water River is not a designated salmonid water under the European Communities (Quality of Salmonid Waters) Regulations 1988 and is not designated as a sensitive water under the Urban Waste Water Treatment Regulations 2001, as amended.

The agglomeration of Glaslough (D0347-01) and associated waste water works (integrated constructed wetland) discharge into the Mountain Water River approximately 6.5 km downstream of the primary discharge from the Emyvale agglomeration. The Mountain Water River is a tributary of the Ulster Blackwater which forms the border between Counties Monaghan and Armagh. The confluence between the Mountain Water and the Ulster Blackwater is approximately 8.5km downstream of the Emyvale primary discharge point.

The Mountain Water River has been biologically monitored by the Agency upstream and downstream of the primary discharge. Monitoring indicates that upstream of the agglomeration, at station 0400, quality has reduced since 1998 when it was rated as unpolluted (Q4-5) to slightly polluted (Q3-4) more recently. Downstream of the agglomeration, at station 0500, biological Q-value 3 (moderately polluted) has generally been recorded since the mid 1980's.

Chemical monitoring of the Mountain Water River, undertaken by Monaghan County Council during 2009 and 2010 (12 samples) and recorded in Aquarius, provides the

mean results, as presented below in Table 2.0, for station 0400 (1st Bridge upstream of Emyvale) upstream of the primary discharge and station 0500 (1.1km downstream of Emyvale) downstream of the primary discharge. These mean results, when compared with the relevant figures for good status in the European Communities Environmental Objectives (Surface Waters) Regulations 2009, are compliant for Ammonia and Ortho-phosphorus upstream of the primary discharge but non-compliant downstream for these parameters and non compliant for BOD upstream and downstream of the primary discharge.

Table 2.0 Mountain Water River, Ambient Monitoring Results

	Station 0400 (1.5km u/s of primary discharge)	Station 0500 (750m d/s of primary discharge)	Environmental Objectives Regulations ^{Note 1}
BOD (mg/l)	1.8	2.3	1.5
Ortho-phosphorus (mg/l)	0.03	0.06	0.045
Ammonia (Total as N) (mg/l)	0.051	0.113	0.065

Note 1: European Communities Environmental Objectives (Surface Waters) Regulations 2009, 'good status' based on mean monitoring results.

The Blackwater Water Management Unit Action Plan states: '*Mountain Water River (XB_03_06, Status 2009 – Poor) considerably polluted by suspected sewage and possibly other discharges below the village of Emyvale*'. However it is also stated that '*EPA licence information suggests that Emyvale and Knocknaonny are not having an impact on their receiving waters as there is adequate dilution in the river*'. The action plan identifies that there should be '*Implementation of Performance Management System*' by 2012.

Assimilative Capacity

The Mountain Water River has a limited dry weather flow. The Hydrometric & Groundwater Section of the Office of Environmental Assessment have calculated that 95%ile flow at the primary discharge point is 0.035m³/s. The applicant presented higher flow rates in the receiving water (95%ile flow rate of 0.099m³/s) and hence greater dilutions and assimilative capacity.

The calculations of assimilative capacity in Table 3.0 below are based on the 95%ile river flow (0.035m³/s (3,024m³/day)) which provides 16 dilutions for the normal primary discharge of 184m³/day.

Table 3.0 Assimilative Capacity (based on 0.035m³/s flow in the receiving water and 184 m³/day flow from WWTP)

Parameter		Background (mg/l)	Proposed ELVs for Primary Discharge (mg/l)	Contribution from primary discharge (mg/l)	Predicted downstream quality (mg/l)	EQOs (mg/l) Note 1
BOD	Actual Background	1.8 ^{Note 2}	14	0.8	2.6	≤2.6
	Notionally Clean	0.26			1.12	
Ortho-phosphate	Actual Background	0.03 ^{Note 2}	0.75	0.043	0.073	≤0.075
	Notionally Clean	0.005			0.048	
Ammonia	Actual Background	0.051 ^{Note 2}	1	0.057	0.108	≤0.14
	Notionally Clean	0.008			0.065	

Note 1: Good status as per European Communities Environmental Objectives (Surface Waters) Regulations 2009, S.I. No. 272 of 2009.

Note 2: Background water quality data for 2009/2010 data recorded in Aquarius based on Monaghan County Council monitoring.

The above table is based on the 95%ile river flow, normal primary discharge volume, background water quality (and notionally clean background water quality) and emission limit values which are considered achievable. The results of the calculations, presented above, indicate that based on the actual recorded background water quality, the primary discharge would result in predicted compliance with the BOD, ortho-phosphate and ammonia 'good status' standards specified in the European Communities Environmental Objectives (Surface Waters) Regulations. The contribution from the primary discharge is not likely to cause deterioration in the receiving water quality.

The emission limit values (ELVs) proposed in the licence application are 25mg/l BOD and 3.6mg/l ortho-phosphate. The RL specifies stricter emission limit values as per table 3.0 above. The limits proposed by the applicant in the licence application are included as interim limits until 31st December 2012 to provide an opportunity to commission all necessary plant. It is considered that the limits applicable after 1st January 2013 are achievable with the existing WWTP infrastructure, however the licensee will have to operate the on-site ferric sulphate dosing system to achieve the ortho-phosphate limits. Condition 5.1 of the RL requires that emissions of total phosphorus and ammonia be reduced to the maximum practicable extent.

4. Site Visit

I visited the Emyvale agglomeration on the 13th July 2010 and inspected the WWTP and primary discharge to the Mountain Water River.

5. Ambient Monitoring

The RL requires monitoring of the receiving water, Mountain Water River, upstream (aSW1(P)u, EDEN monitoring station code RS03M010450) and downstream (aSW1(P)d, EDEN monitoring station code RS03M010500) of the primary discharge at a frequency of 6 times per annum.

6. Combined Approach

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

7. Programme of Improvements

The waste water treatment works serving Emyvale agglomeration have recently been upgraded and the quality of the primary discharge is in compliance with the Urban Waste Water Treatment Regulations, as it is a discharge to freshwater of <2,000 p.e., appropriate treatment is required and therefore the UWWT Regulations standards are not strictly applicable, .

Due to limited assimilative capacity in the receiving surface water the RL sets emission limit values of 14mg/l BOD, 0.75mg/l orthophosphate and 1mg/l ammonia. It is likely that that the proposed limits are achievable from the existing infrastructure however its operation may need to be revised and use of the ferric sulphate dosing (infrastructure present on-site) will be necessary.

8. 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), as amended, notably:

Drinking Water Abstraction Regulations

There are no identified drinking water abstractions downstream of the primary discharge. There is however a drinking water abstraction from Emy Lough, which is within 500 metres of the boundary of the Emyvale agglomeration. Emy Lough is upgradient of the primary discharge, therefore the RL requires no risk analysis.

Sensitive Waters

There are no designated sensitive waters located in the vicinity of the waste water works or primary discharge.

Water Framework Directive [2000/60/EC]

The RL, as drafted, transposes the requirements of the Water Framework Directive. The Blackwater Water Management Unit Action Plan has designated the Mountain Water River as 'poor status'. The plan also identifies the Emyvale WWTP as requiring the implementation of a 'performance management system'. The plan identifies that there are extended deadlines to 2021 proposed for 22 river water bodies within the Water Management Unit, including the Mountain Water River.

Those limits specified in the RL are determined with the aim of assisting towards achieving good water quality status in the Mountain Water River.

European Communities Environmental Objectives (Surface Water) Regulations 2009, S.I. No. 272 of 2009

Current water quality in the Mountain Water River does not comply with the 'good status' surface water objectives, based on monitoring undertaken by Monaghan County Council and provided to the Agency. The emissions from the Emyvale WWTP represent a load on the Mountain Water River when the river is at low flow (95%ile flow), however, the contribution at the proposed emission limit values should not cause a deterioration in water status, as presented above in the assimilative capacity calculations. River monitoring data as presented earlier in this report indicate a reduction in water quality downstream of the primary discharge.

The RL specifies emission limit values which are considered achievable at Emyvale WWTP, subject to use of chemical dosing for phosphorus removal, and will reduce the impact of the primary discharge on the receiving water.

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

Emyvale does comply with the requirements of the Urban Waste Water Treatment Directive and regulations in terms of the level of treatment provided. Monitoring results indicate compliance with the Directive and regulations.

The RL, as drafted, has regard to the requirements of the Urban Waste Water Treatment Directive.

Bathing Water Directive [2006/7/EC]

There are no identified designated bathing waters in the vicinity of the discharge from the agglomeration.

EC Freshwater Fish Directive [2006/44/EC]

There are no designated salmonid waters located in the vicinity of the primary discharge. The WWTP has been upgraded in recent years and can achieve a high level of treatment, the primary discharge emission limits proposed in the RL are considered to be demanding but achievable based on monitoring results and the infrastructure available on-site.

Dangerous Substances Directive [2006/11/EC]

The applicant has provided sampling results for 19 dangerous substances in the primary discharge for the purposes of the licence application. The measured concentrations are not considered significant. Results for copper and zinc are slightly elevated when compared to the ambient standards. Monitoring of receiving waters has shown compliance with the Dangerous Substances Regulations (S.I. No. 12 of 2001).

The Blackwater Water Management Unit Action Plan states in relation to dangerous substances that '*no water bodies are at risk from dangerous substances*'. The RL provides for monitoring of priority substances as required by the Agency.

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

There are no discharges from the Emyvale agglomeration directly into any site designated under the E.U. Habitats or Birds Directives. There are no identified special protection areas (SPA) or special areas of conservation (SAC) within the vicinity of the agglomeration or discharges.

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

The screening assessment undertaken demonstrates that the discharge(s) are not likely to have significant effects, in terms of maintaining favourable conservation status of the qualifying interests.

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(s), having regard to its conservation objectives.

Emyvale WWTP is sited in an active flood plain. The applicant has identified that the Mountain Water River has flooded fields around the WWTP, however, the applicant also identifies that an earth embankment has been constructed between the Mountain Water River and the WWTP.

Environmental Impact Assessment Directive [85/337/EEC]

An EIS was not required in support of the licence application. Should one be required as part of any programme of improvements, it will be dealt with as per Condition 1.8 of the RL.

Other Directives

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 III of 2004/35/EC.

9. Cross Office Liaison

Hydrometric data in relation to the receiving water, Mountain Water River, was received from the Office of Environmental Assessment (Hydrometric & Groundwater Section).

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.

10. Compliance

Emyvale WWTP complies with the requirements of the UWWT Regulations insofar as appropriate treatment was provided by 31st December 2005 for a discharge to freshwater from an agglomeration of less than 2,000 p.e.

11. Submissions

One submission was received from Inland Fisheries Ireland (IFI) on 29th March 2012.

IFI identify that its principle function is the protection, management and conservation of the inland fisheries resource.

IFI note that the monitoring results for the treated effluent relate to dates in 2004-2006 and just two dates in 2009. They identify that to assess the impact of the discharge on the receiving environment it would be more

valuable to use current results. IFI state that having carried out a mass balance calculation based on the information provided, they note a potential increase in parameters, namely BOD, ammonia and ortho-phosphate.

IFI note that the EC Environmental Objectives (Surface waters) Regulations, 2009 have been adopted since the application was made.

IFI identify that the Mountain Water is a valuable resource. The river holds good stocks of Brown Trout with spawning and nursery habitat throughout. IFI note that the river contains notable stocks of crayfish, Austropotamobius pallipes, which is an Annex II species.

IFI state that given the value of fisheries/aquatic habitat it is vital that appropriate discharge limits are set in this licence to ensure at the very least there is no deterioration of existing conditions (Article 5 of EC Environmental Objectives (Surface Waters) Regulations).

Response:

The points identified and noted by IFI have been taken into account in preparing the RL. The assessment of the primary discharge is considered above under section 3 'Receiving waters and impact' and emission limit values are included in the RL which are predicted to cause no deterioration in the receiving water status.

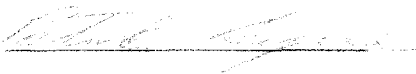
12. Charges

The RL sets an annual charge for the agglomeration at €2,966.26 and is reflective of the monitoring and enforcement regime being proposed for the agglomeration.

13. 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



Patrick Byrne

Office of Climate, Licensing and Resource Use