



C This memo has been cleared for submission to the board by Dr Karen Creed, Senior Inspector.

Signed: *Graíne O'Leary* Date: 10/01/2014

RESOURCE USE.

INSPECTORS REPORT ON A WASTE WATER DISCHARGE LICENCE APPLICATION

To:	Directors
From:	Gavin Clabby Environmental Licensing Programme
Date:	10/01/2014
RE:	Application for a Waste Water Discharge Licence from Monaghan County Council, for the agglomeration named Monaghan, Reg. No. D0061-01

Application Details

Schedule of discharge licensed:	Discharges from agglomerations with a population equivalent of more than 10,000.
Licence application received:	14/01/2008
Notices under Regulation 18(3)(b) issued:	30/06/2008, 09/06/2010, 05/07/2013
Information under Regulation 18(3)(b) received:	23/12/2008, 19/09/2012, 26/08/2013
Site visit:	07/06/2013
Submission(s) Received:	03/04/2009, 05/03/2010

1. Agglomeration

This application relates to the agglomeration named Monaghan located in Co. Monaghan (See map in Appendix 1).

The WWTP was designed to cater for a population equivalent (p.e.) of 55,000. The existing p.e. served by the wastewater works is 30,000. The influent to the wastewater treatment plant is primarily domestic wastewater. The sewage system in Monaghan is a partially combined system.

The WWTP, which was upgraded in 1994, provides secondary treatment. The plant consists of inlet works (2 No. vertical drum screens, 2 No. screw compactors, 1 No. grit classifier.), Phosphorous removal (Ferric Dosing), secondary treatment (2 No. activated sludge final settlement tanks.) and sludge treatment (2 No. Sludge thickeners, 1 No. sludge stabilisation tank, 1 No. Sludge belt press.) It was initially intended to partially divert the influent, after the inlet works, to the old (pre-1994) plant, which consisted of one Imhoff tank and four percolation filters. However, this treatment regime was, in the end, not used; all influent is treated via the new plant.

2. Discharges to waters

The final treated effluent discharges through the primary discharge point (SW001) to the Shambles River, a small watercourse with a 95%ile flow of 0.03 m³/s (approximately 2600 m³/day). The normal flow from the WWTP is 4,833 m³/day, while the maximum discharge from the WWTP is 12,055 m³/day. The final treated effluent quality from the WWTP in the years 2011 and 2012 was within the limits prescribed in the Urban Wastewater Treatment Regulations (BOD 25mg/l, COD 125mg/l, suspended solids 35mg/l and total phosphorous 2 mg/l). The average effluent monitoring results for 2011 and 2012, for BOD, COD and suspended solids were, 2 mg O₂/l 40 mg O₂/l and 9 mg/l, respectively. The average effluent monitoring results for 2012, for total phosphorous was 0.3 mg/l.

There are no secondary discharge points within the agglomeration.

There are eight pumping stations within the agglomeration that relate to wastewater works. There are five emergency overflow associated with these pumping stations. The emergency overflows are located at the following pumping stations: Old Cross Square, Old Armagh Road, Emyvale Road, Ballyalbany and St Davnets, Rooskey.

All pumping stations have one duty pump and one standby pump. The stations at Old Armagh Road and Emyvale Road also contain assistance pumps. There is also a separate storm water pump at Old Armagh Road.

There are seven stormwater overflows within the agglomeration. They are located at Dawson Street, Park Street, Market Road, Cootehill Road and Old Cross Square pumping station, at the WWTP, and at the junction of Broad Road and Dawson Street; all discharge to the Shambles River. 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 5.1 of the 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 from the Monaghan 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 Shambles River downstream of the primary discharge.

Table 1: Receiving waters

Characteristic	Classification	Comment
Receiving water name and type	Shambles River	(WFD Code: IE_NB_03_479)
Applicable Regulations	UWWT Regulations ^{Note 1}	In compliance
	Surface Water Regulations ^{Note 2}	Not in compliance
Designations	None for the Shambles River.	Nutrient Sensitive River (Blackwater) 1.5 km downstream of the discharge.
EPA monitoring stations	Bridge at entrance to GAA grounds EPA RS Code: RS03S010250	0.4 km u/s of SW001 on Shambles River.
	North of Cathedral EPA RS Code: RS03S010300	30 metres d/s of SW001 on Shambles River.
	Culvert u/s of N2 roundabout EPA RS Code: RS03S010500	1.1 km d/s of SW001 on Shambles River.
Biological quality rating (Q value)	Q value downstream (RS03010500): 2-3 (poor)	No Q-value available upstream of WWTP on Shambles River.
WFD status	Poor (status date: 2011)	Poor status based on macroinvertebrates (Physico-chemical status is moderate.) Objective is good ecological status by 2021.
WFD Risk Category	1a (2008)	At risk of not achieving good status. Risk from both diffuse source (EPA diffuse model) and point source (WWTP).

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

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

The Blackwater Water Management Unit Action Plan (WMUAP) identifies the WWTP in Monaghan as a point pressure on the Blackwater catchment. The WMUAP's Selected Action programme further specifies the measure to 'investigate the need for tertiary treatment or for the relocation of the outfall'.

The Office of Environmental Assessment (OEA) carried out downstream ambient monitoring for 2007 to 2009. The monitoring results indicate that the receiving water is not in compliance with the European Communities Environmental Objectives (Surface Water) Regulations 2009, (as amended) for the relevant parameters (BOD, ammonia and orthophosphate). The WSA also carries out carried out monitoring

downstream, as well as upstream, of the discharge point. The WSA's 2012 data shows that the Shambles River is not in compliance with the above regulations at either the upstream or downstream location, for any of the relevant parameters. Although the WSA upstream monitoring indicates the receiving water is already impacted by other sources prior to the WWTP discharge, it should be noted that the WSA downstream data indicates that the waters are significantly impacted further by the WWTP discharge - The Water Framework Directive report for the Shambles River (2008) states that the river is at risk from both diffuse sources and from the WWTP.

Mass balance calculations for the impact of SW001 at current typical discharge concentrations indicate that the predicted downstream concentrations for BOD, orthophosphate and ammonia are not within the standards set in the European Communities Environmental Objectives (Surface Water) Regulations 2009, (as amended).

Table 2 below summarises the mass balance calculations for the impact of SW001 at the proposed licence limits on the Shambles River. The mass balance calculations are based on the 95%ile flow in the receiving water, the notional clean river background concentrations, the normal effluent discharge rate and the proposed limit concentration of each parameter in the effluent.

Table 2: Mass Balance Calculations.

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	3.5	2.28	2.37	2.6 ^{Note 2}
Orthophosphate	0.005	0.1	0.065	0.067	0.075 ^{Note 2}
Total Ammonia	0.008	0.2	0.130	0.133	0.14 ^{Note 2}

Note 1: Notional clean river values 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.

The 'notional clean river' approach (formulated by the Office of Environmental Assessment) has been taken, whereby other sources of upstream pollution will be dealt with by separate measures under the WFD. The purpose of the mass balance calculations is to show the impact of the discharge with respect to water quality standards. The sources which give rise to the background concentrations are outside the control of this licence. The Blackwater WMU provides details of recommendations and planned measures to reduce pollution in water courses. The WWTP discharge shall not cause deterioration in the water quality status.

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). An emission limit value of 0.1 mg/l is recommended for orthophosphate, 0.2 mg/l for ammonia and 3.5 mg O₂/l for BOD in the RL. The limits are set based on the mass balance calculations and the achievable standards that can be met with improved process control or upgraded infrastructure at the WWTP. The WWTP currently has a conventional activated sludge process (with phosphorous reduction prior to secondary treatment) which can intermittently achieve the above recommended standards for the discharge. Based on this information, as well as effluent monitoring data supplied by the applicant, the recommended emission limit values for BOD, orthophosphate and ammonia in the RL would be achievable with suitable process control and/or with the addition of nutrient removal. In view of the derogated WFD

objective of 2021 for the Shambles River, the above ELVs do not apply until the 31st December 2021.

Under 95%ile flow conditions in the River Blackwater (1.5 km downstream of discharge point) more dilutions would be provided. (Mass balance calculations for the River Blackwater, using the 'notional clean river' scenario, indicate that there is sufficient assimilative capacity for the current Monaghan WWTP discharges.) Consequently, a direct discharge to the River Blackwater would not require ELVs as stringent as those specified above. The relocation of the discharge, however, would require a review of the licence.

The ELV set in the RL for COD is the discharge limit specified by the UWWT Regulations (125 mg/l).

Although not a designated salmonid river, Inland Fisheries Ireland, in their submissions (see section 9) have highlighted the value of the River Blackwater as a salmonid habitat. In respect of this fact, the RL sets an ELV of 25 mg/l for SS, which is lower than that otherwise required under the UWWT Regulations (35 mg/l).

The COD and SS limits are currently achievable and are effective from date of grant of licence.

The RL also specifies the UWWT regulations discharge limit for BOD (25 mg/l) as an interim ELV until 31st December 2021, whereupon the more stringent limit of 3.5 mg/l subsequently applies.

Although the receiving water, the Shambles River, is not a designated sensitive water, the River Blackwater, into which it drains, is so designated. Furthermore, Q-value data (Q3, 2010) in this stretch of the Blackwater indicates slight pollution. Under articles 4(2)(a) and 4(3) of the UWWT Regulations, as amended, the WSA is required¹ to limit either, or both², the total nitrogen and total phosphorous for discharges into 'sensitive areas or into the relevant catchment areas of sensitive areas where the discharges contribute to the pollution of these areas.'

Available data does not conclusively determine that the Monaghan WWTP discharge contributes to the pollution of the River Blackwater, although it is quite likely. Regardless, the RL specifies a TP limit of 2 mg/l, effective from date of grant of licence. Applicant data indicates that this limit is currently achievable.

4. Ambient Monitoring

Schedule B.2: Receiving Water 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.2: Receiving Water Monitoring* are sufficient to ensure that there will be no deterioration in the status of the receiving water as a result of the discharge.

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

¹ For agglomerations greater than 10,000 p.e.

² Article 4(3) of the UWWT Regulations, as amended, states 'The Environmental Protection Agency shall determine which parameter or parameters, depending on the local situation, shall apply for the purpose of Part 2 of the Second Schedule and shall take this into account when authorising a waste water discharge for the purpose of the Waste Water Discharge (Authorisation) Regulations 2007 (S.I. No. 684 of 2007).'

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

The WWTP in Monaghan provides secondary treatment for wastewater from the Monaghan 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.

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 from the Monaghan WWTP.

Sensitive Waters

The Shambles River is not designated as a Sensitive Water under the Urban Wastewater Treatment Regulations, 2001, as amended. However, the Monaghan WWTP is discharging into the relevant catchment area of a sensitive area (River Blackwater) where the discharge is regarded as likely contributing to the pollution of this area. An ELV for Total Phosphorus has been set in the RL to ensure compliance with these 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 OEA and the WSA demonstrates non-compliance in the receiving water with the European Communities Environmental Objectives (Surface Water) Regulations 2009, (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 2009, (as amended).

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

Monaghan WWTP currently complies with the requirements of the Urban Waste Water Treatment Directive. 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 all 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]

There are no parts of the Shambles or the Ulster Blackwater rivers themselves which are European sites. Approximately 50 km downstream of the Monaghan agglomeration discharge the Ulster Blackwater flows into Lough Neagh, which is, in its entirety, an SPA³ (site code UK9020091). There are also three areas on the shores of Lough Neagh which are designated SACs⁴ (Montiaghs Moss, site code UK0030214; Peatlands park, site code UK0030326; Rea's and Farr's Bay, site code UK0030244).

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 Lough Neagh and the Agency considered, given the distance from the Monaghan WWTP to these European sites, as well as the current good quality of the WWTP discharge, 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.

Environmental Impact Assessment Directive [85/337/EEC]

An EIS was not required 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.

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.

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.

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.

Rebecca Quinn of the OEA provided information on the 95%ile flows on the Shambles River.

9. Submissions

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

Two submissions were received, A. Diarmuid Ryan, Fisheries Environmental Officer, Eastern Regional Fisheries Board (Now Inland Fisheries Ireland) & B.Pat Doherty, Chief Executive Officer, Eastern Regional Fisheries Board.

A. Diarmuid Ryan, ERFB

In relation to the licence application, Mr Ryan wishes to raise issues relating to certain sections of the application which examine the possible effects of the WWTP discharge on the receiving watercourse (The Shambles River) and the Monaghan Blackwater.

- (i) *Mr Ryan notes that data submitted in the application, as well as that collected by the Agency, indicates that the WWTP is severely impacting the Shambles River.*

Comment: This data has been noted above in section 3 of this inspector's report. The RL specifies limits and conditions which, along with other planned measures specified in the Blackwater WMU for pollution reduction in the catchment, will aim to achieve good status for Shambles River by the WFD target date of 2021, if not sooner.

- (ii) *Mr Ryan performed mass balance calculations (95%ile river flow) for the WWTP discharges for the Blackwater river, into which the Shambles River drains. His calculations, which use actual background concentrations for the Blackwater, indicate that the WWTP discharges negatively impact this larger river also. Mr Ryan highlights the calculated negative impact of the discharge for the parameters of BOD and orthophosphate, which is backed up by Agency monitoring data downstream of the confluence with the Shambles. He also notes the absence in the application of any mass balance calculation for ammonia. He states that his own calculations for this parameter would indicate long term toxic effects for fish life in the Blackwater and the Shambles. (He further points out that the Blackwater contains "valuable salmonid habitat with good stocks of Brown Trout and Dollaghan".)*

Comment: In this assessment similar calculations and analysis of monitoring data have been performed, and have similar conclusions with respect to the negative impact of the Monaghan WWTP discharges. The

calculations in this report are, however, based on notional clean river values rather than actual background data. From a regulatory and practical viewpoint, this approach is considered appropriate given the other planned measures specified in the Blackwater WMU for pollution reduction in the catchment, as well as the derogated WFD target date of 2021 for the Shambles River. Regardless, the ELVs set in the RL aim to achieve the WFD objective of 'good status' for the receiving water.

- (iii) *Mr Ryan concludes that "unless the Monaghan WWTP is completely overhauled and upgraded with state of the art technology, the plant (sic) is not sustainable at this location. If it continues to discharge as it does presently, it would be nearly impossible for sections of the Monaghan Blackwater, let alone the Shambles, to achieve good status by 2015, as is the main objective of the WFD."*

Comment: The RL specifies limits and conditions which, will aim to achieve good status for Shambles River by the WFD target date. It is incumbent on the licensee to achieve these limits, which will require additional nutrient reduction/tertiary treatment, or otherwise propose an alternative method of treatment or disposal which will comply with relevant regulations. Consideration of any proposals by the Agency may require a licence review.

B. Pat Doherty, CEO ERFB

Mr Doherty's submission took the form of an enclosed letter addressed to Monaghan Town Council, in which he refers to poor quality discharge from a surface water pipe running to a Peters Lake (located in the town), after a nearby sewer line became blocked and overflowed into the aforementioned surface water pipe. Mr Doherty then asks the council what measures are being taken to prevent this discharge reoccurring.

Comment: No secondary or unauthorised discharges are permitted in the RL. Condition 5 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.

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

A handwritten signature in blue ink is positioned above a solid black horizontal line. The signature consists of a large, stylized 'G' that loops under the line, followed by a 'C' that also loops under the line.

Gavin Clabby
Environmental Licensing Programme

Appendix - Agglomeration map (Approximate agglomeration boundary marked in red)

