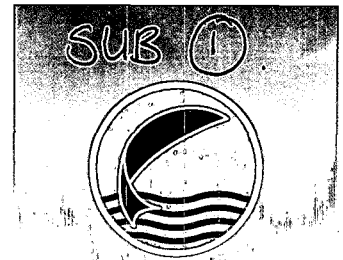


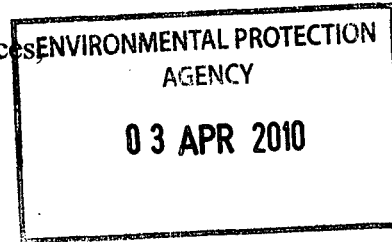


**Eastern Regional Fisheries Board**  
**Bord Iascaigh Réigiúnach an Oirthir**



**Fisheries Ireland**  
 Our Natural Heritage

Office of Climate, Licensing and Resources  
 Environmental Protection Agency,  
 PO Box 3000,  
 Johnstown Castle Estate,  
 Co. Wexford



31<sup>st</sup> March, 2009

**Re: Waste Water Discharge Licence Application in respect of Agglomeration  
 Named Ardee Waste Water Treatment Plant. Ref: D0061-01**

Dear Sir/Madam,

We refer to the above-mentioned application for a waste water discharge licence at Monaghan WWTP, Ardee, Co. Monaghan. While The Board welcomes the future licensing of discharges from this WWTP, there are some serious issues which must be raised in relation to some sections of the application and the accompanying letter to the EPA, dated 18<sup>th</sup> December 2008. Namely those sections which examine possible effects on the receiving watercourse The Shambles and ultimately The Monaghan Blackwater.

Upon examination of the data provided in the application as well as monitoring data collected by The EPA, it can be concluded without doubt that the Monaghan WWTP is severely impacting its receiving watercourses.

Section F- *Existing Environment and Impact of the discharges*, of the response letter seems to admit that dilution in The Shambles is insufficient but to call the dilution levels "quite low" is a gross understatement. At 95%ile flows, the discharge from the plant makes up 99% of the total flow in the shambles below the discharge. Therefore, a viable river channel with potential salmonid habitat is essentially being used as a conduit to transfer treated sewage to The Monaghan Blackwater. Regardless of the Water Framework Directive (WFD) Requirement that all water bodies must achieve "good status by 2015", this is unacceptable practise. The letter tries to defend this by referring to other existing water quality problems in The Shambles, which admittedly, are substantial and must be investigated. However, this does not take away from the fact that the WWTP is the main contributor to the "gross pollution" (EPA Report on County Monaghan River Water Quality 2007) of The Shambles. The results of the assimilative capacity calculations, also in section F, provide further evidence for this. These predict huge increases in pollutants due to the effluent discharge. The predicted concentrations of BOD and suspended solids both exceed the maximum mandatory value allowed under The Freshwater Fish Directive (78/659/EEC). Likewise, predicted Ortho-phosphate

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concentrations greatly exceed the nutrient conditions assigned by The Draft Phosphorous Regulations for a waterbody to achieve good status.

Section F of the response letter notes that “throughout the history of Monaghan WWTP, it has been considered that the River Blackwater is, in effect, the receiving waters of the treatment plant’s effluent. Although this historically was a disastrous mistake, with regards to present state of The Shambles, it should nonetheless be appropriate to examine the effect of the discharge on the Blackwater itself.

Using the same mass balance equation and other information provided in the response letter, it is possible to examine assimilative capacities of the Blackwater during 95%ile flows. The EPA has compiled chemical data from monitoring during 2007 at a site slightly upstream of the Blackwater’s confluence with the Shambles. This is the data which is used below:

River Data	
	<b>cubic metres/sec</b>
A	95%ile flow 0.05
<b>Background values</b>	
B	BOD (mg/l) 1.5
C	Ammonia (mg/l) 0.07
D	Ortho-P (mgP/l) 0.04
<b>Discharge Effluent Data</b>	
	<b>cubic metres/sec</b>
E	Discharge flow rate 0.056
	<b>Parameter Value</b>
F	BOD (mg/l) * 12.2
G	Ammonia (mg/l) * 63
H	Ortho-P (mgP/l) * 1.6

BOD calc - final river concentration	
Formula	Value (mg/l)
$(F*E)+(B*A)/(A+E)$	7.152830189

Ammonia calc - final river concentration	
Formula	Value (mg/l)
$(G*E)+(C*A)/(A+E)$	33.31603774

Ortho-P calc - final river concentration	
Formula	Value (mg/l)
$(H*E)+(D*A)/(A+E)$	0.864150943

\* Obtained from TABLE D.1(i)(b)

As can be seen from the calculations above, the discharge from the WWTP is having a detrimental effect on the Blackwater. During these conditions, BOD could be expected to rise to more than twice the guide limit provided in the Freshwater Fish Directive for salmonid containing waters, such as the Blackwater. Although organic enrichment due to Ortho-phosphate tends to be a chronic problem in surface waters and so it could be argued that it is more fitting to use 50%ile flows when examining its effect on a waterbody. However, the calculation above provides an example of how drastic the effect of the discharge on the Blackwater could be. This potential effect is validated by examining monitoring episodes carried out by the EPA in 2007. The last monitoring station upstream of the confluence with the Shambles recorded a median Ortho-P concentration of 0.04mg/l and the first one after recorded a median concentration of 0.13. This is obviously a hugely significant increase. It could not be said that the Monaghan

WWTP is the only cause of this large decrease in quality, but it must be a highly significant contributor.

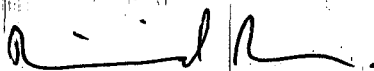
It should also be highlighted that ammonia has been omitted from assimilative capacity calculations provided in the application and the accompanying letter. This is a particularly important pollutant with regards to fish, which experience acute toxic effects at relatively low levels. For this reason it is important to examine the assimilation of ammonia into watercourses at 95%ile flows or lower. This is examined above. The concentration as provided in TABLE D.1 (i)(b) seems very high for a treated effluent. Nonetheless, its assimilation into the Blackwater would render the watercourse highly toxic for not only fish but most aquatic life. For temperatures and pH levels indicative of the Blackwater in this area, Ammonia concentrations of around 1.5mg/l would be sufficient for fish to experience long term toxic effects (EPA Parameters of Water Quality: Appendix 3). Obviously the effect would be even greater in the Shambles.

In conclusion, unless the existing Monaghan WWTP is completely overhauled and upgraded with state of the art technology, the plant 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 water quality status by 2015, as is the main objective of the WFD. This already significant problem will be exacerbated by population increases in Monaghan town and projected climate change which could cause significant reductions in streamflow for late autumn in some catchments, particularly in the east (Climate Change – Refining the Impacts for Ireland).

The Monaghan Blackwater contains valuable salmonid habitat with good stocks of Brown Trout and Dollaghan. Therefore, it is important that any discharges from the plant in the future will not increase the chronic problem of organic enrichment in The Monaghan Blackwater.

We trust you will take note of our observations. Please keep us informed of your progress with this application.

Regards,



Diarmuid Ryan  
Fisheries Environmental Officer