AN ROINN COMHSHAOIL, OIDHREACHTA AGUS RIALTAIS ÁITIÚIL
DEPARTMENT OF THE ENVIRONMENT, HERITAGE AND LOCAL GOVERNMENT

25th June 2008

Our Ref: Cork G2008/468b
EPA ref: D0058-01

Valerie Hannon,
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Cork County Council,
County Hall,
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RE: Fermoy WWTP discharge licence (D0058-01) (Consultation under Regulation 18 of the Waste Water Discharge (Authorisation) Regulations 2007 (S.I. No. 684 of 2007))

We refer to your letter dated 6th June 2008 in reference to the above-proposed development. Outlined below are the nature conservation recommendations of the Department of the Environment, Heritage and Local Government.

The proposed discharge is located within or upstream of the following European sites:Blackwater River (Cork/Waterford)cSAC (2170);Blackwater callows SPA (4094).

Due to the uncertainty associated with the effects of the following:

1. Ability of WWTP to accommodate extra projected population equivalent loading;
2. Nutrient concentrations in the proposed discharges during low water;
3. Industrial and other discharges potentially leading to heavy metal concentrations;
4. Susceptibility of site to flooding;
5. The effects of endocrine disrupters in wastewater (see note attached*);on the following qualifying habitats and species:

Watercourses of plain to montane levels with water-crowfoot (*Batrachium*) and water-starwort (*Callitriche*) vegetation;
Alluvial forests with alder (*Alnus glutinosa*) and ash (*Fraxinus excelsior*);
Sea lamprey (*Petromyzon marinus*);
River lamprey (*Lampetra fluviatilis*);
Salmon (*Salmo salar*);
Kingfisher (*Alcedo atthis*);
Otter (*Lutra lutra*);

The proposed Wastewater discharge is considered likely to have significant adverse effects on a European site. For this reason, the Department of the Environment, Heritage and Local Government submits that an Appropriate Assessment is required with regard to this plan pursuant to Article 6 or 7 of EC Directive 92/43/EEC.

There is insufficient historical water quality data for downstream of Fermoy provided in the EIS to establish whether water quality conditions were adequate for a viable population of the freshwater pearl mussel at the time of entry into force of the Habitats Directive (1994). Further water quality or nutrient concentration data is required from this stretch of river (6km downstream of Fermoy) before 1995, which is critical to the decision on the licence because of the very high water quality requirements of this species.

Should you require any further assistance, please do not hesitate to contact this Department at the following address.

The Manager,
Development Application Unit,
The Department of the Environment, Heritage and Local Government,
Dún Scéine,
Harcourt Lane,
Dublin 2.

Mise le meas,

Ciara Beddy.

Ciara Beddy
Developments Applications Unit

Note *

(* While there is a substantial amount of published scientific work of the effects of endocrine disrupting chemicals in WWTP effluents on downstream fish, assessments of significant effects on populations have only recently been completed 1 2. One recent study has shown EDCs to have a significant adverse effect on a minnow population (in the U.S. 3), but another concluded that significant effects on brown trout populations unlikely (in Switzerland[2]). Irish data reviewed in 2005 4 led to the conclusion that, in general, fish populations "do not appear to be at risk from estrogenic chemicals", but, more recently, data from the Shannon system has shown EDCs to be present in concentrations which are known to cause reproductive changes in river fish 5. Physiological effects of these concentrations on roach (*Rutilus rutilus*) has been demonstrated in the Shannon rivers, but their population effects are not known 6. A U.K. study concluded that more restrictive discharge limits for alkylphenol polyethoxylates "can potentially lead to significant reduction in the effects of these chemicals on exposed fish" 7. The SCOPE/IUPAC Project on the implications of endocrine active substances for humans and wildife concluded in 2003 that "In cases where there is documented scientific evidence based upon valid studies of serious and irreversible damage, but some degree of scientific doubt, it may be important to consider implementing interim precautionary measures for risk management actions that may avert harm, while ongoing research fills the knowledge gap 8." Therefore, based on the U.S. study involving minnows, cited above, there is reasonable scientific doubt concerning the potential effects of EDCs from the Fermoy WWTP on minnow prey of the kingfisher, and this issue should be addressed sufficiently in the Assessment.

[1] Hester, R.E. and Harrison, R.M. (1999) *Endocrine disrupting chemicals*. Royal Society of Chemistry, London.

[2] Burkhardt-Holm, P., Segner, H., Burki, R., Peter, A., Schubert, S., Suter, M.J-F. and Borsuk, M.E. (2008) Estrogenic endocrine disruption in Switzerland: Assessment of fish exposure and effects. *Chimia* **62**: 376-382.

[3] Kidd, K.A., Blanchfield, P.J., Mills, K.H., Palace, V.P., Evans, R.E., Mazorchak, J.M. and Flick, R.W. (2007) Collapse of fish population after exposure to a synthetic estrogen. *Proceedings of the National Academy of Sciences* **104**: 8897-8901.

[4] Tarrant, H., Llewellyn, N., Lyons, A., Tattersall, N., Wylde, S., Mouzakitis, G., Maloney, M. and McKenzie, C. (2005) *Endocrine disruptors in the Irish aquatic environment (2000-MS-2-M1) – Synthesis Report*. Environmental Protection Agency, Wexford.

[5] Reid, A. and Roche, J. (2005) Hormone modulating substances in the Irish midlands Shannon catchment: Extraction, analysis and quantification. *Proceedings of ESAI Environ2005*: 54-57.

[6] McGee, C. and Fogarty, A. (2008) Endocrine disrupting chemicals: Are they turning our male fish female? – an investigation. Poster, ESAI Environ2008.

[7] Sheahan, D., Cliffe, S., Jobling, S., Harries, J., Hurst, M., Morris, S., Routledge, E., Sumpter, J. and Waldock, M. (2002) *The identification of oestrogenic substances in sewage treatment works effluents. Part II: Industrial effluents*. Environment Agency, Bristol.

[8] Klein, W. (2003) Endocrine disruptors - Panel Presentation: SCOPE/IUPAC Project on implications of endocrine active substances for humans and wildlife. 4th Meeting of Intergovernmental Forum on Chemical Safety, 1-7 November, Bangkok, Thailand.