

Sub. (81)

**Catherine O'Keeffe**

**From:** Ian Marnane  
**Sent:** 09 March 2007 08:56  
**To:** Gilbert Power  
**Cc:** Catherine O'Keeffe  
**Subject:** RE: Proposed Fingal Landfill W231-01

*Fingal Co. Co.  
 PO Box 174  
 Fingal Co. HALL  
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 Co. Dublin.*

Thanks Gilbert, I will get this processed.

Regards,

Ian

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**From:** Gilbert Power [mailto:Gilbert.Power@fingalcoco.ie]  
**Sent:** 08 March 2007 16:17  
**To:** Ian Marnane  
**Subject:** Proposed Fingal Landfill W231-01

Dr. Marnane

Mr. Kevin Cullen has made a submission on the 14/2/2007 (Ref: 76) in which he refers to our Report to the Bord Pleanala Oral Hearing regarding the Bog of the Ring scheme. For completeness, I have attached a copy of the written submission which Mr Cullen refers to. It was made by Mr. Lar Spain of our Water Services Department.

Regards,

Gilbert Power  
 Fingal County Council

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09/03/2007

## **Overview of the Bog of the Ring Groundwater Abstraction Scheme**

My name is Lar Spain. I am Senior Engineer, Operations, in the Water Services Department of Fingal County Council. I am responsible for all operational matters relating to Water Production, Water Supply, Wastewater Collection and Wastewater Treatment in Fingal County Council. I am responsible for the operation and maintenance of the Leixlip and Bog of the Ring Water Treatment Plants.

### **INTRODUCTION**

The Bog of the Ring groundwater abstraction scheme came into operation in July 2003. It consists of five boreholes, or Production Wells, constructed on a roughly east-west line running from PW1 beside the M1 motorway at Decoy Bridge at its eastern extremity, to PW5 in Killougher, some 3km to the west. Shortly after its commissioning, PW1 was abandoned due to sand ingress, and only the remaining four production wells are used to extract raw water from the aquifer.

The raw water from the production wells is collected in a raw water main and transported to a treatment plant located just east of the M1 at Decoy Bridge. The water abstracted from the aquifer is of good quality, is hard water, but contains high levels of Iron and Manganese. The iron and manganese are removed at the Bog of the Ring Treatment Plant, the water is fluoridated in compliance with the legislation, and the water is also disinfected before being put into distribution.

Water from the Bog of the Ring is pumped to our reservoirs at Jordanstown and Kilsough and, together with approximately the same quantity of treated water from our Leixlip Water Treatment Plant, supplies Balbriggan and the surrounding area with potable water.

The quantity of treated water produced at the Bog of the Ring Water Treatment Plant varies between 3.5 and 4.0 Million Litres per day (MLD).

### **WATER PRODUCTION IN FINGAL**

Fingal County Council operates two water treatment plants, Bog of the Ring Water Treatment Plant and Leixlip Water Treatment Plant. The Bog of the Ring plant produces a maximum of 4.0 MLD while Leixlip produces a maximum of 168 MLD. The Leixlip plant abstracts its raw water from the river Liffey at Leixlip. Roughly half of what is produced at Leixlip is consumed in Fingal, the other half is exported to Dublin City Council, Kildare County Council, Meath County Council and South Dublin County Council. The Leixlip plant supplies treated water to all parts of Fingal including the Balbriggan

area. To supply Balbriggan the water must travel in excess of 40 km through our pipe network from Leixlip to Balbriggan.

## **LOCAL IMPORTANCE**

From the preceding paragraphs it can be seen that Bog of the Ring accounts for slightly less than 5% of the water requirements of Fingal, but it accounts for about 50% of the water requirements of the Balbriggan area. Bog of the Ring Water Treatment Plant is therefore locally important for Fingal at the present time. There are three reasons for this:

1. Leixlip Water Treatment Plant is currently operating at or near its maximum capacity, so it cannot at present produce extra water to replace Bog of the Ring.
2. The pipe infrastructure from Swords to Balbriggan is not capable of delivering more water to the Balbriggan area, even if it were available at Leixlip.
3. The Bog of the Ring plant gives Water Services a source of water in the North County and thereby eases the pressure on burst repair times.

## **SUSTAINABILITY OF THE BOG OF THE RING SCHEME**

Hydrogeological studies undertaken periodically from 1984 to 2000 within and in the environs of Bog of the Ring indicated that potential existed for the development of a groundwater abstraction scheme. The studies indicated that the development of an abstraction scheme for approximately 4,500cu.m/day was feasible in the short term. The longer term viability of the scheme was dependent on pump tests and interpretation of hydrogeological data to determine that no significant impacts on the ecological status of the designated area occurred.

TES Consulting Engineers were engaged by Fingal County Council in August 2004 to act as Hydrogeological Consultants for the Bog of the Ring Groundwater Abstraction Scheme. Their brief was to assess the sustainable abstraction from the Bog of the Ring aquifer and included the recording of groundwater levels from the monitoring network within and adjacent to the Bog of the Ring, on a fortnightly basis, for a 2 year period. This project concluded in August 2006 and they issued their final report in October 2006, as planned. The relevant findings are:

- the abstraction scheme is not significantly impacting on the ecological status of the designated area.
- the 2000 pump test programme over-estimated the potential of the aquifer.
- The recharge of the aquifer is impeded by the thick deposit of low-permeability clays.
- The estimated sustainable yield from the aquifer is 4 MLD (+/- 15%).

- Increasing abstraction from the Bog of the Ring aquifer is not recommended as increased abstraction "has the potential to over-exploit the aquifer; whereby there is insufficient recharge to the aquifer to meet the abstraction".
- The catchment area delineated from the water level monitoring programme is generally consistent with the catchment area delineated by the GSI, with one notable exception. The GSI include a significant area to the west of the M1 motorway (approximately 5 sq.km). The monitoring programme indicates that the cone of depression induced by abstraction does not extend into this area.

The full report prepared by TES Consulting Engineers has been submitted to the hearing, and a summary of the report, by the author Mr. Mark Conroy, is attached as an appendix to my brief of evidence.

## **FUTURE PLANS**

Fingal are currently at an advanced stage in the planning for increasing the production capacity at Leixlip Water treatment Plant. Planning permission has been obtained from South Dublin County Council, a water abstraction license will be applied for soon, and it is planned to have additional water, in the order of 60 MLD, from Leixlip in late 2009, bringing the sustainable output of Leixlip up to 225 MLD.

The pipe infrastructure from Leixlip to Balbriggan is also undergoing improvement. New rising mains from Leixlip to our main reservoir at Ballycoolen are about to be constructed, with construction planned to start in January 2007, and ending in early 2009.

The main reservoir at Ballycoolen is currently being doubled in capacity with the new reservoir scheduled to be brought into service in the middle of 2007.

A new duplicate pipe is planned between Ballycoolen and Swords with construction scheduled by 2008.

A new section of pipe has already been constructed by-passing Swords, which has increased capacity and has allowed water to continue to flow to the North County during repairs of the major trunk main in Swords.

Improvements to the main from Swords to Balbriggan are also underway with construction due to commence in the middle of 2007, and completion of the final phase in 2009.

This additional distribution infrastructure, along with the additional water from Leixlip, will allow the Balbriggan area to be supplied with water independently of the Bog of the Ring groundwater scheme.

On a regional basis, Dublin City Council are currently at the early stages of planning, to provide a major new source of water (circa 350 MLD) to the Dublin Region in 2015.

All of these works will reduce the importance of the Bog of the Ring Water Treatment Plant, but no plans are currently in place to decommission the plant.

## **SUMMARY**

- The Bog of the Ring Scheme supplies 3.5 to 4.0 MLD to Balbriggan and its environs.
- This represents approx. 5% of Fingal's current water requirements.
- It has been established that it is not sustainable to increase abstraction from the aquifer.
- The sustainable abstraction from the aquifer is estimated at 4 MLD (+/- 15%).
- The abstraction scheme is locally important to the Balbriggan area pending the delivery of water production and infrastructure improvements, the first phase of which are expected to be commissioned in late 2009.
- In the medium to long term the importance of the Scheme will diminish in the context of the water service improvements being implemented and predicted population growth for the Fingal area.

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